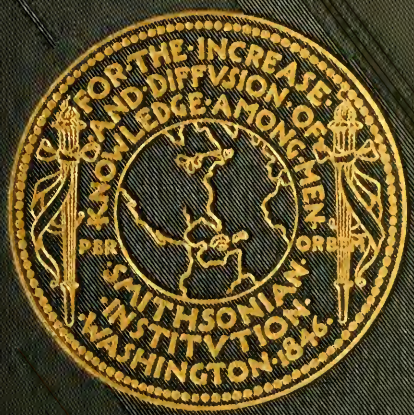
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SMITHSONIAN INSTITUTION
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THE BIRDS OF NORTH AND MIDDLE AMERICA

A DESCRIPTIVE CATALOG
OF THE
HIGHER GROUPS, GENERA, SPECIES, AND SUBSPECIES OF BIRDS
KNOWN TO OCCUR IN NORTH AMERICA, FROM THE
ARCTIC LANDS TO THE ISTHMUS OF PANAMA
THE WEST INDIES AND OTHER ISLANDS
OF THE CARIBBEAN SEA, AND THE
GALÂPAGOS ARCHIPELAGO

By
HERBERT FRIEDMANN

PART XI

Family Cathartidae—The American Vultures
Family Accipitridae—The Hawks, Eagles, Kites, Harriers, and Old World Vultures
Family Pandionidae—The Ospreys
Family Falconidae—The Falcons and Caracaras

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PREFACE

The families of birds included in the present and preceding volumes of this work are as follows:

Part I, issued October 24, 1901, includes the Fringillidae (finches) alone.

Part II, issued October 16, 1902, includes the Tanagridae (tanagers), Icteridae (troupials), Coerebidae (honeycreepers), and Mniotiltidae (wood warblers).

Part III, issued December 31, 1904, includes the Motacillidae (wagtails and pipits), Hirundinidae (swallows), Ampelidae (waxwings), Ptilogonatidae (silky flycatchers), Dulidae (palm chats), Vireonidae (vireos), Laniidae (shrikes), Corvidae (crows and jays), Paridae (titmice), Sittidae (nuthatches), Certhiidae (creepers), Troglodytidae (wrens), Cinclidae (dippers), Chamaeidae (wren-tits), and Sylviidae (warblers).

Part IV, issued July 1, 1907, contains the remaining groups of Oscines, namely, the Turdidae (thrushes), Zeledoniidae (wren-thrushes), Mimidae (mockingbirds), Sturnidae (starlings), Ploceidae (weaverbirds), and Alaudidae (larks), together with the haploophone or oligomyodian Mesomyodi, comprising Oxyruncidae (sharpbills), Tryannidae (tyrant flycatchers), Pipridae (manakins), and Cotingidae (chatterers).

Part V, issued November 29, 1911, includes the tracheophone Mesomyodi, represented by the Pteroptochidae (tapaculos), Formicariidae (antbirds), Furnariidae (ovenbirds), and Dendrocolaptidae (woodhewers); the Macrochires, containing the Trochilidae (hummingbirds) and Micropodidae (swifts), and the Heterodactylae, represented only by the Trogonidae (trogons).

Part VI, issued April 8, 1914, contains the Picariae, comprising the families Picidae (woodpeckers), Capitonidae (barbets), Ramphastidae (toucans), Bucconidae (puffbirds), and Galbulidae (jacamars); the Anisodactylae, with families Alcedinidae (kingfishers), Todidae (todies), and Momotidae (motmots); the Nycticoraciae, with families Caprimulgidae (goatsuckers) and Nyctibiidae (potoos), and the Striges, consisting of families Tytonidae (barn owls) and Bubonidae (eared owls).

Part VII, issued May 5, 1916, contains the Coccygiformes (cuckoo-like birds), Psittaciformes (parrots), and Columbiformes (pigeons).

Part VIII, issued June 26, 1919, contains the Charadriiformes (ploverlike birds) with families Jacanidae (jacanas), Oedicnemidae (thickknees), Haematopodidae (oystercatchers), Arenariidae (turnstones), Aphrizidae (surfbirds), Charadriidae (plovers), Scolopacidae (snipes, sandpipers, etc.), Phalaropodidae (phalaropes), Recurvirostridae (avocets and stilts), Rynchopidae (skimmers), Sternidae (terns), Laridae (gulls), Stercorariidae (skuas and jaegers), and Alcidae (auks).

Part IX, issued October 2, 1941, contains the Gruiformes with the families Gruidae (cranes), Rallidae (rails, gallinules, and coots), Heliornithidae (sun-grebes), and Eurypygidae (sun-bitterns).

Part X, issued December 18, 1946, contains the Galliformes, with the families Cracidae (curassows, guans, and chachalacas), Tetraonidae (grouse and ptarmigan), Phasianidae (American quails, partridges, and pheasants), Numididae (guineafowl), and Meleagrididae (turkeys).

Part XI, the present part, contains the Falconiformes, with the families Cathartidae (New World vultures), Accipitridae (hawks, kites, buzzards, eagles, harriers, and Old World vultures), Pandionidae (ospreys), and Falconidae (falcons, caracaras, and laughing falcons).

Parts XII and XIII, now in course of preparation, will contain the Anseriformes (ducks, geese, and swans); the Ciconiiformes, with the families Ardeidae (herons, bitterns, etc), Cochleariidae (boatbills), Ciconiidae (storks and wood ibises), Threskiornithidae (ibises and spoonbills), and Phoenicopteridae (flamingoes); the Pelecaniformes, with the families Phaethontidae (tropicbirds), Pelecanidae (pelicans), Sulidae (boobies and gannets), Phalacrocoracidae (cormorants), Anhingidae (snakebirds), and Fregatidae (man-o'-war-birds); the Procellariiformes, with the families Diomedeidae (albatrosses), Procellariidae (shearwaters and petrels), and Hydrobatidae (storm petrels); the Colymbiformes (grebes); the Gaviiformes (loons); the Sphenisciformes (penguins); and the Tinamiformes (tinamous).

In the 11 volumes thus far published there have been treated in detail (that is, with full descriptions and synonymies), besides the families above mentioned and higher groups to which they belong, 732 genera and 2,919 species and subspecies, besides 241 extralimital genera and 692 extralimital species and subspecies whose principal characters are given in the keys and whose principal synonymy is given in footnotes.

For the privilege of examining, or for the loan of, specimens needed in the preparation of the present volume acknowledgments are due to the authorities of the Academy of Natural Sciences of Philadelphia; the American Museum of Natural History, New York; Carnegie Museum, Pittsburgh; Chicago Natural History Museum; Museum of

Comparative Zoology, Cambridge; National Museum of Canada, Ottawa; Royal Ontario Museum of Zoology, Toronto; Museum of Verterbrate Zoology, Berkeley; University of Michigan Museum, Ann Arbor; Cornell University Museum, Ithaca; California Academy of Sciences, San Francisco; Dickey Collection, University of California at Los Angeles; Princeton University Museum; U. S. Fish and Wildlife Service, Washington, D. C.; Museum of Birds and Mammals, University of Kansas, Lawrence; British Museum (Natural History), London; Muséum d'Histoire Naturelle, Paris; Naturhistorisches Museum, Vienna; Natural History Museum, Leyden; the collections of Robert T. Moore, Pasadena, and the late J. H. Fleming, Toronto. The total number of specimens thereby made available for study in the present connection is hard to estimate but runs into many thousands.

As in Part X, the author has made extensive use of the manuscript notes left by the late Robert Ridgway. His notes covered the diagnoses of genera and higher groups and partial synonymies for many of the species and subspecies. Wherever possible his manuscript has been included with a minimum of change (other than addition to synonymies) permitted by more recent data. However, unlike the procedure followed in Parts IX and X the present author has not felt constrained to keep the work as largely Ridgway's as possible and has deleted some of his accounts of genera no longer considered valid and has attempted to bring the whole account more in line with current taxonomic opinion. Where any of Ridgway's manuscript has been incorporated it has been thoroughly studied with the specimens and the literature; nothing has been accepted merely because it was already written. As in the previous two parts of this series the author has felt himself responsible for the entire contents and has not considered himself as an editor of an unpublished work.

A change in the form of citation in the synonymy of the birds is instituted in this volume. In the earlier volumes by Ridgway, and in the last two by the present author, in which Ridgway's system was followed, care was taken to distinguish between references in which the scientific name was completely spelled out and those in which parts of it, such as the generic or the specific name (or both), were abbreviated or even left out; also distinction was made between diphthongs and separate vowels. Beginning with the present part these distinctions have been ignored, as the old method serves no real purpose. This is particularly true now that the literature is so very much more extensive than it was when the series was started, and to continue with the old system would merely add to the bulk and the expense of producing this volume.

The manuscript of the present volume was completed in 1936 and was revised and brought up to date in 1940, again in 1945, and, for the last time, in February to May 1948. Just before going to press in August 1949 a few changes were made to bring it in line with changes suggested by Hellmayr and Conover, page proofs of whose volume were kindly sent me for that purpose.

Measurements of specimens for use in the preparation were made by the author and by A. L. O'Leary, under the author's supervision. The late Maj. Allan Brooks contributed (before the present author began this work) a series of notes on the colors of the unfeathered parts of many of the species discussed herein. The outline drawings of generic details, except those previously published, were made partly by E. R. Kalmbach, and partly, under the author's supervision, by Mrs. Aime M. Awl, of the United States National Museum staff. Compilation of literature references was done by the author with some assistance from the late J. H. Riley and from Dr. E. M. Hasbrouck.

Herbert Friedmann.

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THE BIRDS OF NORTH AND MIDDLE AMERICA

By Herbert Friedmann

Part XI

Order FALCONIFORMES: Diurnal Birds of Prey

>Rapaces Scopoli, Introd. Hist. Nat., 1777, 478 (includes Striges, Bucerotidae, and Ramphastidae).—Merrem, Abh. Akad. Wiss. Berlin, for 1812, 1816, 238 (includes Striges).

>Raptatores Illiger, Prodromus Orn., 1811, 194 (includes Striges).—Carus, Handb. Zool., i, 1868–75, 300 (includes Striges).—Reichenow, Vög. Zool. Gart., 1882, 222 (includes Striges).—Reichenow, Die Vögel, i, 1913, 359 (includes Striges).—Engelmann, Die Raubvögel Europas, 1928, 85 (includes Striges).

>Raptrices Macgillivray, Man. Brit. Orn., pt. 1, 1840, 33 (includes Striges).

>Raptores Vigors, Trans. Linn. Soc., xiv, 1823, 405, footnote (includes Striges).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 3 (includes Striges).—Carus, Handb. Zool., Wirbelth., i, 1868, 300 (includes Striges).—American Ornithologists' Union, Check-List, 1886, 182 (includes Striges); ed. 3, 1910, 152 (includes Striges).—Forbush, Birds Massachusetts and other New England States, i, 1927 (includes Striges).

><Raptores Seebohm, Classif. Birds, 1890, vii, ix, 14 (includes Striges, excludes Carthartae!).

>Rapacious Latham, Genl. Synopsis Birds, Supplement ii, 1801, 1 (includes Striges).

=Acciptres Bonaparte, Saggio Distr. Anim. Vertebr., 1831, 29.—Sclater and Salvin, Nom. Av. Neotr., 1873, vii, 118.—Newton, Encycl. Brit., ed. 9, xviii, 1885, 47.—Fürbringer, Unters. Morph. Syst. Vög., ii, 1888, 1294, 1565.—Gurney, Cat. Birds Prey, 1894, 11.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1897, 39.—Hartert, Vög. pal. Fauna, ii, 1913, 1041.—Reichenow, Die Vögel, i, 1913, 360.—Miller (W. DeW.), Bull. Amer. Mus. Nat. Hist., xxxiv, 1915, 132.

>Acciptres Lesson, Écho du Monde Savant, 9e an., vi, sér. 2, No. 44, 1842, col. 1036 (includes Striges).—Bonaparte, Consp. Gen. Av., i, 1850, 9 (includes Striges); Rev. Mag. Zool., vi, 1854, 530 (includes Striges).—Gray, Hand-list, i, 1869, v, 1 (includes Striges).—Garrod, Proc. Zool. Soc. London, 1874, 117 (includes Striges).—Sclater, Ibis, 1880, 403 (includes Striges).—Stejneger, Sci. Rec., ii, 1884, 155 (includes Striges).—Cope, Amer. Nat., xxiii, 1889, 871, 872 (includes Striges).

<Accipitres Gadow, Classif. Vertebr., 1898, 33 (excludes Cathartae).

=Accipitres diurnes LESSON, Écho du Monde Savant, 9e an., vi, sér. 2, No. 44 1842, col. 1036.
=Accipitres diurni GRAY, Hand-list, i, 1869, 1.
>Falconidae BONAPARTE, Saggio Distr. Anim. Vertebr., 1831, 36 (includes Striges).
=Aëtomorphae CARUS, Handb. Zool., i, 1868, 75, 305.
>Hemeroharpages SUNDEVALL, Öfv. Svenska Vet.-Akad. Förh., 1874, No. 2, 22 (includes Cariami!).
>Gypo-Falconidae ENGELMANN, Die Raubvögel Europas, 1928, 144.
=Hemeropharpages FÜRBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1294, 1565.
=Pelargoharpages FÜRBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1565 (alternative name).
=Euharpages FÜRBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1294 (alternative name).
><Accipitriformes SHARPE, Rev. Rec. Att. Classif. Birds, 1891, 71 (includes Striges, excludes Cathartae).
<Accipitriformes SHARPE, Hand-list, i, 1899, xx, 241 (excludes Cathartae).—SWANN, Synopt. List Accip., pt. 3, 1920, 3 (excludes Cathartae).
=Falconiformes GADOW, Classif. Vertebr., 1898, 33.—OBERHOLSER, Outl. Classif. North Amer. Birds, 1905, 2.—KNOWLTON, Birds of World, 1909, 48, 202.—WETMORE and MILLER, Auk, xliii, 1926, 341.—WETMORE, Pro U. S. Nat. Mus., lxxvi, art. 24, 1930, 3; Smiths. Misc. Coll., lxxxix, No. 13c. 1934, 5; xcix, No. 4, 1940, 29; No. 7, 1940, 5.—BANNERMAN, Birds Trop., West Africa, i, 1930, 163.—PETERS, Check-list Birds of World, i, 1931 189.—AMERICAN ORNITHOLOGISTS' UNION, Check-list, ed. 4, 1931, 61.

Palate completely desmognathous to completely schizognathous; if indirectly desmognathous, not so by intervention of vomer alone; nor in combination with a large vomer and large palatal vacuity; nares holorhinal, and when pervious (Cathartae) associated with functional basipterygoid processes; temporal fossae, when present, confined to lateral aspect of skull; supraorbital grooves absent; vomer blade-shaped, no ossiculum lachrymopalatinum; the palatines not fused medioposteriorly; an ossified orbitosphenoid. Corpus sterni very large (relatively to size of girdle), oblong, with relatively small anterolateral processes, which bear facets for articulation of the anterior sternal ribs; metasternum entire, 2-notched, or with two foramina, but posterolateral processes never very large; articular surfaces for sternal ribs extending up to or beyond middle of sternal plate; coracoid grooves wide, but shallow, bordered above by a well-marked "lip"; coracohumeral groove indistinct; coracoids slightly overlapping or only touching (sometimes not quite touching) each other, and with well-marked processus lateralis basalis; acrocoracoid very large; furcula U-shaped, very broad, with feebly developed hypocleideum. Presynsacral vertebrae all heterocoelous, thoracic vertebrae free (except in Falconidae); cervical vertebrae, 13–15. Preacetabular ilium very long and with external lateral border more or less concave; pectineal process wanting; supratrochanteric processes generally prominent and

raised high above the antitrochanter; pubis, when present, generally closely approximated to ventral border of ischium. Ambiens and femorocaudal muscles present; biceps slip absent; expansor secundariorum usually absent (present in *Polyborus, Milvago, Falco, "Cerchneis," Microhierax,* and *Harpyhaliaetus*); tensor patagii brevis simple; pectoralis primus muscle divided into two layers (except in *Milvago* and *Dryotriorchis*); peroneal muscles both present; glutaeus I usually absent, glutaeus II usually present; deep plantar tendons of type III (except in Cathartae and Pandionidae), the flexor hallucis dividing into two parts at lower end of metatarsus, one part going to the hallux, the other blending with the branch of the flexor communis which supplies digit II. Syrinx tracheobronchial; carotid arteries both present; liver with lobes subequal; gall bladder present; caeca nonfunctional (rudimentary or absent); intestinal convolutions of type IV. Oil gland present, usually feathered (nude in Cathartae); aftershaft present (except in Cathartae and Pandionidae); powder-down patches usually absent (present in *Elanus, Circus,* and *Gypaetos*); secondaries aquincubital; rectrices 12–14. Young ptilopaedic and nidicolous.

KEY TO THE SUBORDERS OF FALCONIFORMES

a. Posterior, or ischioiliac, edge of os innominatum without any notch; external nares imperforate; olfactory chamber small; maxillopalatines spongy; precoracoid process large; metasternum 2-notched, or with 2 fenestrae, or entire; hypotarsus without grooves; hallux incumbent, functional, connected with flexor longus hallucis, the flexors of type III; no web or membrane between second or third toes; lower larynx present, provided with one pair of intrinsic (tracheobronchial) muscles; semitendinosus and accessory semitendinosus muscles absent; oil-gland feathered; neck with large lateral apteria, caeca present; myological formula A+ or BXY+; index digit of manus without external claw, eggshells with green or reddish-yellow translucence ..... **Falcones** (p. 59)

aa. Posterior or ischioiliac edge of os innominatum with a deep notch; external nares perforate; olfactory chamber greatly developed; maxillopalatines thin, scroll-like; precoracoid process rudimentary; metasternum 4-notched; hypotarsus with two shallow grooves; hallux elevated, nonfunctional, connected with the flexor perforans digitorum, the flexors of Type V; a distinct web or membrane between basal phalanges of second and third toes; lower larynx wanting; semitendinosus and accessory semitendinosus muscles present; oil gland nude; neck without lateral apteria; caeca absent; myological formula AXY+ or XY+; index digit of manus with an external claw; eggshells with yellow or greenish-yellow translucence ..... **Cathartae** (p. 3)

Suborder CATHARTAE: American Vultures

=Temnorhines BRANDT, Jour. für Orn., 1853, 181.

=Grypomorphae CARUS, Handb. Zool., i, 1868–75, 305.

>Necroharpages SUNDEVALL, Förs. Fogelklassens, Meth. Nat. Av. Disp. Tentamen, 1872, 110 (includes Polyborinae).

>Accipitres Merrem, Abh. Akad. Wiss. Berlin for 1812, 1816, 239 (includes Falcones).

=Sarcorhamphi Ridgway, Bull. Illinois State Lab. Nat. Hist., No. 4, 1881, 190; Man. North Amer. Birds, 1887, 218, in text; Orn. Illinois, i, 1889, 488.—American Ornithologists' Union, Check-list, 1886, 182; ed. 3, 1910, 152.—Oberholser, Outl. Classif. North Amer. Birds, 1905, 2.—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 87.

=Pseudogryphi Forbes, Ibis, 1884, 119.—Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 78 (suborder).

=Cathartes Seebohm, Classif. Birds, 1890, xi, 16.

=Mimogypes Seebohm, Ibis, 1890, 203.

=Cathartiformes Brabourne and Chubb, Birds South Amer., i, 1912, 61.—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 237.

=Cathartidiformes (order) Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 78; Hand-list, i, 1899, xx, 240.—Swann, Synopt. List Accip., pt. 1, 1919, 1.

=Catharteae Pycraft, Proc. Zool. Soc. London, 1902, 318, 319.

=Cathartae Gadow, Classif. Vertebr., 1898, 33.—Knowlton, Birds of World, 1909, 48.—Pycraft, Hist. Birds, 1910, 49, in text.—Wetmore and Miller, Auk, xliii, 1926, 341.—Wetmore, Proc. U. S. Nat. Mus., lxxvi, art. 24, 1930, 3; Smiths. Misc. Coll., lxxxix, No. 13, 1934, 5; xcix, No. 4, 1940, 29; No. 7, 1940, 5.—American Ornithologists' Union, Check-list, ed. 4, 1931, 61.—Peters, Check-list Birds of World, i, 1931, 189.

=Pelargoharpages Fürbringer, Unters. Morph. Syst. Vog., ii, 1888, 1565.

=Vultures (suborder) Swann, Monogr. Birds of Prey, i, pt. 1, 1924, 1.

Pseudo-vultures, resembling, superficially, the true Vultures[1] but differing profoundly from these, as well as from all other Falconiformes, in anatomical characters, as follows:

Nares holorhinal, pervious, elongated longitudinally; maxillopalatines widely separated, but bridged by a process from each meeting and co-ossifying with the median portion of the nasal septum; hallux relatively small, elevated, nonfunctional, connected with the flexor perforans digitorum[2] (the latter also connected with second and third digits), the flexor longis hallucis leading to the third and fourth, sometimes to the second, third, and fourth digits, but never to the hallux; a distinct web or membrane between the basal phalanges of the second and third (inner and middle) toes; intrinsic muscles of larynx wanting; ambiens, semitendinosus and accessory semitendinosus muscles present; oil gland nude; myological formula AXY+ or XY+.

Palate indirectly desmognathous, the maxillopalatines widely separated (but bridged as above described) and having the form of scroll-like plates; anterior palatine vacuity very large; basipterygoid processes present, articulating with middle of pterygoids; olfactory chamber of great size; no trace of internasal septum; lachrymals fused with the frontals, and without free posterior longitudinal spurs; vomer wanting; metasternum with two pairs of notches, the outer pair some-

[1] Subfamily Aegypiinae of the family Accipitridae, suborder Falcones.

[2] In this character agreeing with certain Coraciiformes (Alcyones, Coraciae, and Bucerotes).

times closed to form fenestrae; keel of sternum very deep, extending backward to extreme edge of sternum, the greatest curvature of its free margin near its middle; spina externa and spina interna absent; coracoid grooves shallow and broad, divided from one another in the middle by a strong ridge; acrocoracoid without articular facets for furcula; linea aspera for origin of subclavis extending backward to within a short distance of the posterior end of the sternal plate; distal extremities of furcula pierced by a pneumatic foramen; procoracoid process rudimentary; index digit of manus with an external claw; pelvis ciconiine, but iliac pockets present (absent in Ciconiidae); postacetabular ilium shorter than ischium and the limitations of the elements indicated posteriorly by a deep notch, the ischium being continued backward in a sharp spine along the pubis, the latter projecting far beyond the ischium.[3] Hypotarsus simple, with two shallow grooves; deep plantar tendons of type V; index digit of wing with an external claw; basal phalanx of middle toe longer than either of the succeeding ones; syrinx absent, the only muscles of trachea being the sternotracheales, the intrinsic muscles entirely absent; semitendinosus and accessory semitendinosus muscles present; expansor secundariorum present; tendons of patagium ciconiine; tendons of patagium ciconiine, the brevis consisting of a separate anterior and posterior section, of which the latter is thinner and more diffuse, the anterior tendon dividing into two, of which the foremost gives off a slip to the longus; biceps slip absent; pectoralis primus muscle divided into two parts; glutaeus I covers over biceps; glutaeus V present; carotid arteries, both present; gall bladder present; caeca absent or rudimentary; liver equilobed; crop present, well developed; tongue large and fleshy, with denticulations along its upturned lateral margins; stomach not a gizzard; secondaries aquintocubital; rectrices 12–14; cervical pterylosis without apteria; oil gland nude; contour feathers without aftershafts; head (sometimes neck also) naked in adults, covered with short down in young; young ptilopaedic[4] pod nidicolous, fed by regurgitation; eggs 1 or 2, deposited on bare earth, or rock, or wood, usually in cavities; eggshells with yellow or greenish-yellow translucence.

The removal of the American vultures from very close association with the true so-called birds of prey (suborder Falcones) has been justified by the investigations of the best anatomists and systemists for so long a time that it is scarcely worth while to refer to their former inclusion within the latter group. It is sufficient to say that the external resemblance between them and the Old World, or true,

[3] Pycraft, Proc. Zool. Soc. London, 1902, 318, 319.

[4] Said by Sharpe (Review of Recent Attempts to Classify Birds, 1891, 78) to be gymnopaedic in *Sarcoramphus*, but this is almost certainly an error.

vultures (subfamily Aegypiinae, family Accipitridae) is merely a superficial one, investigations of the anatomists having revealed numerous important, not to say profound, differences in the internal structure of the two groups, these involving not only the bony framework, but the muscular system and other "soft parts." In short, the general external resemblance is teleological or adaptive, both groups performing the same service, that of scavengers, in the countries they respectively inhabit, for which purpose certain external features are similarly modified.

The exact relationships of the Cathartae are, however, somewhat complex. It has been fairly clearly demonstrated that they are not very distantly related to the Ciconiiformes, Pelecaniformes, and Procellariiformes. One authority has even placed them in the Coraciiformes (Anisodactylae), on account of the similarity in the arrangement of the plantar tendons, which is the same as in the coraciiform superfamilies Bucerotes, Halcyones, and Coraciae, being thus very different from that seen in the Falcones. Whatever may be the significance of this agreement in one character with the anisodactyle Coraciiformes, the true meaning of the more numerous resemblances in structure to the other groups mentioned probably is that the Cathartae are a much less specialized (or more generalized) group than the true Falconiiformes and have not become differentiated so far from the primitive stock from which the Ciconiiformes, Pelecaniformes, and Procellariiformes have been developed.

The suborder Cathartae includes only one living family, the Cathartidae, and two monotypic, extinct families, the Teratornithidae,[5] which displays features of both the Cathartae and the Falcones, but on the whole is of cathartid affinities, and the Eocathartidae[5] forming a distinct superfamily. It has the lachrymals fused with the frontals and ectethmoids, and has a free communication of the nares with the mouth and beak cavities. Other cathartid features are the enlarged basisphenoid processes, the slight nasal depression, the short descending lachrymal processes, and the smooth contours of the cranium. Falconid characters present are the high, compressed beak, with an almost straight tomial edge, the high, short nares, the large lachrymals, and the solid interorbital septum.

Family CATHARTIDAE: American Vultures

>Vulturidae Bonaparte, Saggio Distr. Anim. Vertebr., 1831, 36 (includes true vultures); Consp. Gen. Av., i, 1850, 9 (includes true vultures).—Lesson, Écho du Monde Savant, 9e an., vi, ser. 2, No. 44, 1842, col. 1036 (includes true vultures).—Lilljeborg, Proc. Zool. Soc. London, 1866, 15 (includes

[5] Miller, L. H., Univ. California Publ. Geol., v, No. 21, 1909, 317. Wetmore, A. O. U. Check-list, ed. 4, 1931, 429; Ann. Carnegie Mus., xxx, 1944, 58.

true vultures).—Sharpe, Cat. Birds Brit. Mus., i, 1874, ix, 2 (includes true vultures).

=Vulturidae Baird [and Cassin], Rep. Pacific R. R. Surv., ix, 1858, xvii, 3, 4.

=Cathartinae Lafresnaye, Rev. Zool., 1839, 194.—Bonaparte, Consp. Gen. Av., i, 1850, 9. Baird, Rep. Pacific R. R. Surv., ix, 1858, xvii.—Sundevall, Öfv. Svensk. Vet.-Akad. Förh., No. 2, 1874, 38.

=Cathartinae Eyton, *in* Jardine's Contr. Orn., 1849, 133 (excludes *Sarcoramphus*).

=Catharidae Huxley, Proc. Zool. Soc. London, 1867, 463.—Carus, Handb. Zool., i, 1868–75, 305.—Coues, Key North Amer. Birds, 1872, 221; ed. 2, 1884, 497, 557.—Sclater and Salvin Nom. Av. Neotr., 1873, vii, 123.—Garrod, Proc. Zool. Soc. London, 1874, 113.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 335; Man. North Amer. Birds, 1887, 218; Orn. Illinois, i, 1889, 488.—Sclater, Ibis, 1880, 404.—Barrows, Stand. Nat. Hist., iv, 1884, 263, 266, in text.—Gurney, List Diurn. Birds Prey, 1884, xiii, 2.—Newton, Encycl. Brit., ed. 9, xviii, 1885, 47.—American Ornithologists' Union, Check-list, 1886, 182; ed. 3, 1910, 152.—Fürbringer, Unters. Morph. Syst. Vog., ii, 1888, 1296, 1580.—Gadow, Classif. and Struct. Vertebr., 1898, 33.—Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 78; Hand-list, i, 1899, xx, 240.—Beddard, Struct. and Classif. Birds, 1898, 481.—Knowlton, Birds of World, 1909, 48, 203.—Brabourne and Chubb, Birds South Amer., i, 1912, 61.—Reichenow, Die Vögel, i, 1913, 361.—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 237.—Swann, Synopt. List Accip., pt. 1, 1919, 1; Monogr. Birds Prey, i, pt. 1, 1924, 1.—Wetmore and Miller, Auk, xliii, 1926, 341.—Forbush, Birds Massachusetts and other New England States, ii, 1927, 88.—Wetmore, Proc. U. S. Nat. Mus., lxxvi, art. 24, 1930, 3.—American Ornithologists' Union, Check-list, ed. 4, 1931, 61.—Peters, Check-list Birds of World, i, 1931, 189.

=Sarcoramphinae Gray, Hand-list, i, 1869, iv, 3.

<Sarcorhamphinae Eyton, *in* Jardine's Contr. Orn., 1849, 133 (includes *Sarcoramphus* only!).

=Sarcorhamphinae Brandt, Journ. für Orn., 1853, 181.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 2, 20.

>Sarcoramphidae J. E. Gray, List Spec. Brit. Mus., pt. 1, Accip., 1844, 1 (includes Aegypiinae).

=Sarcoramphidae J. E. Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 2.

=Sarcorhamphidae Ridgway, Bull. Nuttall Orn. Club, v, 1880, 77.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 130.

=Gryphinae Reichenbach, Av. Sys. Nat., Vog., 1850, C.

To the anatomical characters given under the heading of order Cathartae, on page 4, the following may be added:

Whole head, and sometimes neck also, naked (covered with short down in young), the plumage sometimes commencing abruptly on the lower neck in the form of a more or less conspicuous ruff, into which the head may be drawn by flexion of the neck; eyes prominent, not shaded by a superciliary shield; cere much elongated, usually much depressed anteriorly below the apex of the strongly arched culmen; nostrils longitudinal (horizontal), the two confluent or perforate; middle toe very long (nearly as long as tarsus), exceeding lateral toes by more than the combined length of its terminal and subterminal phalanges, its basal phalanx longest; outer toe slightly

longer than the inner; hallux elevated, nonfunctional (not adapted for grasping), about equal in length to basal phalanx of inner toe; all the anterior toes connected at base by a well-developed web; tarsi and greater part of toes covered with small, nearly circular, scales, these becoming obsolete, or nearly so, on the upper portion of tarsus; claws short, blunt.

Nest, none, the eggs being deposited on the ground or in a cavity of a tree or stump or among rocks; eggs, one or two, much more elongate than those of other Falconiformes (Falcones), plain whitish or spotted, the inner shell showing a yellow or greenish-yellow translucence when viewed against the light.[6]

The American vultures are birds of powerful and graceful flight and represent probably the most perfect type of soaring bird; indeed much the greater part of their time, when not at rest, is spent "soaring on bouyant wing," surveying the ground far below for the carrion or offal which constitutes their food. At other times they sit, perched upon some tree top or other elevated position, with motionless wings fully outstretched, in the manner of the cormorants and anhingas.[7]

The question whether the American vultures are able to discover their food by the sense of smell is a debatable one, for, though it has been argued, pro and con, the evidence of either side is not entirely convincing. Without desiring to enter into a discussion of the subject, I venture to remark that one important fact seems to have been overlooked in connection with the matter, namely the obviously great difference in the development of the olfactory organs in the different genera. These are more highly specialized in the genus *Cathartes* than in the other genera; and from numerous observations I am fully convinced that the birds of that genus do, to a great extent, utilize their keen sense of smell for the discovery of their food. On the other hand, my conviction is equally strong that *Coragyps urubu* depends mainly if not exclusively on its keen vision for that purpose. Carefully conducted experiments, however, are necessary before the question can be settled beyond dispute. (R. R.)

The Cathartidae include the largest birds of flight now existing, the famed condor of the Andes (*Vultur gryphus*) and the equally large California species (*Gymnogyps californianus*) being among its members. Some existing carinate birds exceed these in weight, and a few (the large albatrosses, for example) equal them in extent of wings, but none is quite their equal in weight and spread of wing combined,

[6] In the Accipitridae (except *Gypaëtus* and *Neophron*) the color of the eggshell when similarly viewed is green; in the Falconidae, in *Gypaëtus* and *Neophron*, and in the Sagittariidae, it is reddish yellow.

[7] As if in confirmation of their not too distant relationship to the Pelecaniformes, as indicated by anatomical similarities in the two groups.

although some of the Old World vultures are but little inferior in this respect. The remaining members of the group, however, are birds of only moderate size, those belonging to the genera *Cathartes* and *Coragyps* but little exceeding the larger hawks in bulk.

The family (as well as the suborder, to which it is exactly equivalent among living birds) is peculiar to America, where it is represented by five genera (four of them monotypic) and seven or eight species, which inhabit all but the colder portions of both continents.

"They lack the strength and spirit of typical Raptors, and rarely attack animals capable of offering resistance; they are voracious and indiscriminate gormandizers of carrion and animal refuse of all sorts—efficient and almost indispensable scavengers in the warm countries where they abound. They are uncleanly in their mode of feeding; the nature of their food renders them ill-scented, and when disturbed they eject the fetid contents of the crop. Although not truly gregarious, they assemble in multitudes where food is plenty, and some species breed in communities. When gorged, they appear heavy and indisposed to exertion, usually passing the period of digestion motionless, in a listless attitude, with their wings half spread. But they spend most of the time on wing, circling high in the air; their flight is easy and graceful in the extreme, and capable of being indefinitely protracted. On the ground, they habitually walk instead of progressing by leaps.[8] Possessing no vocal apparatus, the vultures are almost mute, emitting only a weak hissing sound." (Coues.)

KEY TO THE GENERA OF CATHARTIDAE

a. Commissure short, the angle of rictus situated nearly beneath posterior end of nostril; entire neck, except extreme lower portion, bare; cervical vertebrae, 17; dorsal vertebrae, 3; coccygeal vertebrae (exclusion of pygostyle), 6[9]; basi-temporal region of skull deeply excavated, the lateral portion developed into prolonged occipital processes [10]; postacetabular ilia rising above synsacrum to meet one another in median line; rings at bifurcation of bronchii thick and close together; bronchii incomplete internally; eggs immaculate.

b. Cere decidedly shorter than rhinotheca of maxilla; bill very strong, with culmen distinctly arched from base; adult male, at least, with a conspicuous "comb" or erect compressed caruncle surmounting the cere; plumage commencing on lower neck with soft and downlike or broad and blended feathers.

c. Size very large (wing more than 760 mm.); plumage (in adults commencing with a conspicuous collar of soft, cottonlike white downlike feathers; "comb" (present in adult male only) attached to entire length of cere and backward to at least middle of crown; adult male with a

[8] When hurried, however, they progress by awkward springing leaps, assisted by their half-opened wings, in a manner not materially different from hawks or eagles under similar circumstances.

[9] Shufeldt, New York State Mus. Bull. 130, 1909, 25.

[10] Beddard, Proc. Zool. Soc. London, 1903 (2), 386–392.

median wattle or "dewlap"; and with a somewhat convolute or twisted caruncle extending from side of occiput obliquely downward across side of neck to base of gular wattle; auricular region without longitudinal corrugations and occiput not covered with bristles; primaries decidedly longer than longest secondaries; front of tibiotarsal joint feathered; sexes decidedly different, the female being smaller and without comb, dewlap, or other fleshy appendages or else with these greatly reduced in size.

Vultur (extralimital) [11]

cc. Size smaller (wing less than 525 mm.); plumage commencing on lower neck with large, broad, blended normal feathers; "comb" (present in both sexes) attached to middle of cere (above nostril) only; throat without median wattle or dewlap; no caruncular excrescence on side of neck; auricular region with longitudinal corrugations; occiput densely covered with short bristles or hairs; primaries not extending beyond tips of longest secondaries; front of tibiotarsal joint naked; sexes alike.

Sarcoramphus (p. 11)

bb. Cere decidedly longer than rhinotheca of maxilla; bill comparatively weak, with culmen not distinctly arched basally; no "comb" or other fleshy appendages on head or neck (in either sex); plumage commencing on lower neck with stiff, lanceolate, acuminate feathers; cervical vertebrae, 15; dorsal vertebrae, 4; coccygeal vertebrae (exclusive of pygostyle) 5; sacral vertebrae as in *Cathartes*. (Size of *Vultur*.)--**Gymnogyps** (p. 51)

aa. Commissure long, the angle of rictus situated far back of posterior end of nostril (about halfway between the latter and anterior angle of eye); neck with more than lower half feathered; basitemporal region of skull flattened, not developed laterally into conspicuous processes; postacetabular ilia not rising above synsacrum, and widely separated; femorocaudal muscle absent; rings at bifurcation of bronchii extraordinarily thin, leaving broad membranous intervals, which are occasionally traversed by bridges connecting them; eggs conspicuously spotted. (Vertebrae as in *Gymnogyps*.)

b. Nostril very large and broad, occupying the whole of the nasal fossa, both ends broadly rounded; cervical vertebrae, 13; cervical ribs, 2 pairs; sacral ribs, 2 pairs; wing relatively much longer (more than nine times as long as tarsus), the longest primaries much exceeding longest secondaries; tail more than half as long as wing, strongly rounded; middle toe, without claw, longer than tarsus; plumage normal----------**Cathartes** (p. 30)

bb. Nostril relatively small and narrow, occupying only posterior half of nasal fossa, narrowly acuminate anteriorly; cervical vertebrae, 14; cervical ribs, 3 pairs, sacral ribs, 3 pairs; wing relatively much shorter (less than six times as long as tarsus), the longest primaries scarcely exceeding longest secondaries; tail less than half as long as wing, truncate; middle toe, without claw, shorter than tarsus; plumage very hard and stiff.

Coragyps (p. 17)

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[11] *Vultur*, Linnaeus, Syst. Nat., ed. 10, i, 1758, 86 (type, by subsequent designation (Allen, 1907), *V. gryphus* Linnaeus).—*Gryphus* Oken, Lehrbuch der Naturg., Atlas, 1816, pl. 32, fig. (type, by tautonymy and original designation, *Vultur gryphus* Linnaeus); Isidor Geoffroy-St. Hilaire, Essais de Zool. Générale (Nouv. Suites à Buffon, livr. 53), 1841, 367, footnote (type, by monotypy, *Vultur gryphus* Linnaeus).

Genus SARCORAMPHUS Duméril

Sarcoramphus Duméril, Zool. Analytique, 1806 (1805), 32. (Type, as subsequently designated by Vigors, Zool. Journ., ii, 1825, 381, note, and 384, *Vultur papa* Linnaeus.) (See Allen, Bull. Amer. Mus. Nat. Hist., xxiv, 1905, 35, 38.)

Sarcoramphos (emendation) Douglas, Companion to Bot. Mag., ii, 1836, 99.

Sarcorhamphos (emendation) Brehm, Isis, 1837, 368.

Sarcorhamphus (emendation) Boie, Isis, 1826, "976"=970.

Sarcorramphus (emendation) Brehm (A. E.), Thierleben, iii, 1866 (1865), 560.

Sarcorrhamphus (emendation) Burmeister, Handb. Naturg., Heft 2, 1837, 781.

Gypagus [12] Vieillot, Analyse, 1816, 21. (Type, as designated by Gray, 1844, Genera Birds, i, 4, *Vultur papa* Linnaeus.)

Gypagos (emendation) Schinz, Thierreich, i, 1821, 454.

Gyparchus Gloger, Hand- und Hilfsbuch, 1842 (1841), 235. (Type, by monotypy, *Vultur papa* Linnaeus.)

<*Cathartes* Illiger, Prodr. Syst. Mamm. et Av., 1811, 236 (no type; includes *Vultur papa* Linnaeus and *V. aura* Linnaeus in the order named; diagnosis that of the family).—Spix, Av. Bras., i, 1824 (includes *C. aura* and *C. ruficollis*).

"*Cathartes*, Illig." Gray, Hand-List, i, 1869, 3.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 22.

Large and very robust Cathartae (wing about 480-525 mm.), with strong bill, cere surmounted by a wrinkled suberect or semipendent wrinkled caruncle (in adults), and with plumage commencing abruptly on lower neck with broad, rounded, normal feathers.

Bill very strong, the culmen strongly arched from base and very strongly and rather abruptly decurved, the tip of the maxilla strongly uncinate; gonys convex, ascending terminally, prominent basally through narrowing of rami; maxillary tomium concave anteriorly, slightly convex or descending posteriorly; the commissure terminating far anterior to anterior angle of eye, the rictus being on a line (vertically) with posterior end of nostril or slightly anterior thereto; cere inclining upward from base of maxillary rhinotheca to level of anterior portion of forehead, its upper surface with an erect or semipendent fleshy or cartilaginous wrinkled caruncle or "comb," the base of which is shorter (longitudinally) than the apex and attached from near the anterior edge of the cere to a little past middle of nostril; auricular and subauricular regions longitudinally corrugated; nostril elongate- or elliptical-ovate, near upper part of cere, its longitudinal axis parallel with the latter. Wing large and broad but primaries relatively short, the longest not extending beyond tip of longest secondaries; third primary (from outside) slightly longest, the first (outermost) shorter than sixth but longer than seventh. Tail a little less

[12] In the "Analyse" Vieillot includes under *Gypagus* (1) "Roi des Vautours Buff"[on]=*Vultur papa* Linnaeus, and (2) "*Vultur gryffus* Linn."=*V. gryphus* Linnaeus. In the Nouv. Dict. d'Hist. Nat., xxxvi, 1919, 449, the species mentioned are *Vultur californianus* and "*V. gryffus*."

than half as long as wing, truncate or very slightly rounded. Tarsus about one-sixth as long as wing, decidedly longer than middle toe without claw (but shorter than middle toe with claw), the upper portion wholly bare (the nudity involving tibiotarsal joint); outer toe (without claw) longer than inner toe, but claw of the latter longer, the total length of lateral toes being thus subequal.

Plumage and coloration.—Head and greater part of neck bare (in young covered with short down), the occiput (in adults) covered with short, closely appressed bristles or hairlike feathers; plumage in general compact, the feathers relatively broad, especially the secondaries and rectrices; tibiotarsal joint bare. Adults with upper parts mostly plain vinaceous-buff or cream color, the ruff round lower neck grayish, the remiges, rump, upper tail coverts, and tail black, the secondaries edged with white and grayish; under parts white; bare skin of head and neck brightly colored with varied hues of scarlet, orange, yellow, blue, etc., the irides white. Young plain dusky brown, the bill blackish, the head without caruncular appendages.

Nidification.—Unknown, but egg immaculate white.

Range.—Continental Tropical America in general, mostly in the *tierra caliente* and in forested regions. (Monotypic.)

SARCORAMPHUS PAPA (Linnaeus)

King Vulture

Adults (sexes alike).—Upper neck ("ruff") plumbeous, the feathers white at base; tertials, secondaries, primaries, greater and primary coverts, rump, upper tail coverts, and tail black, the secondaries grayish exteriorly and edged with white; rest of plumage deep vinaceous-buff or pinkish cream color above, white beneath; naked skin of head and upper neck very brilliantly colored in life; pileum and auriculars dull orange-red, subauriculars pale yellow with a little whitish; nape cadmium yellow becoming nearly lemon yellow anteriorly; sides of upper neck dull orange-red; middle of upper throat cadmium yellow, sharply defined; bare cheeks pale blue, becoming purplish in the superior, diagonally posterior half; cere and base of maxilla brownish orange becoming cadmium orange on the nasal caruncles; nareal portion of maxilla black; distal third of maxilla dull orange-red; mandible dull orange-red apically separated from the cadmium-yellow basal part by a black transverse band; chin pale blue (colors taken from a freshly killed adult male); iris white; feet variable in dried skins, fuscous above and below, the scutes on the upper surface dark fuscous but the yellowish color coming in between them causing a speckled appearance.

Immature.—Entire upperparts, including wings and tail and even the bare skin of the head, fuscous to fuscous-black, the individual feathers of the back, the upper wing coverts and upper tail coverts vaguely margined with fuscous-brown, the outer primaries externally narrowly edged with whitish; breast abdomen, sides, flanks, and under tail coverts white; under wing coverts mixed white and fuscous, axillars white.

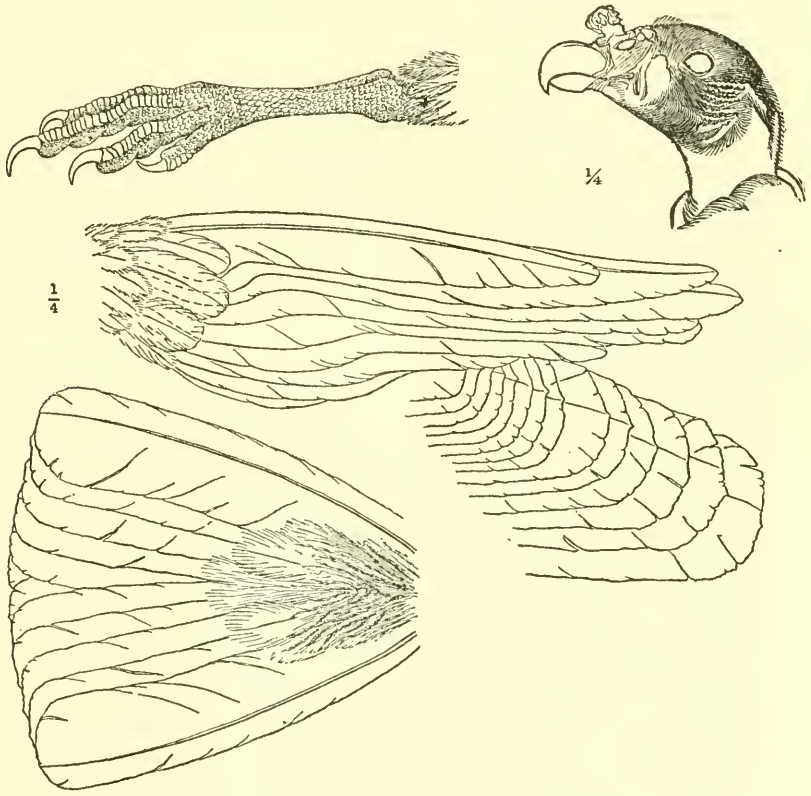

FIGURE 1.—*Sarcoramphus papa.*

Bill whitish horn color, lighter distally; feet (in dried skins) dark earth brown.

Juvenal.—Similar to immature, but with the entire underparts dark fuscous like the upperparts; some specimens with a slight mixture of whitish on the abdomen (probably early stages of molt into immature plumage); bill and feet (as far as may be judged from dried skins) as in immature.

Downy young.—None seen; no descriptions found except a figure (Proc. Zool. Soc. London, 1894, 163) which suggests white or whitish down everywhere but on the bare head and feet.

Adults (sexes alike).—Wing, 482–508 (495); tail 228–257 (244); culmen 33–37 (35.5); tarsus 90.4–93.3 (92.1); middle toe 76–84.2 (81.5 mm.).[13]

Range.—Tropical continental America from central Mexico (accidentally to southern Arizona (Rio Verde) and formerly (1775) to St. Johns River, Fla.) south to Peru, Bolivia, Paraguay, and northern Argentina (Misiones, Salta, Jujuy, Tucumán, La Rioja, Santa Fé); also Trinidad (formerly), but not in any of the West Indian Islands.

Type locality.—Surinam.

Vultur papa Linnaeus, Syst. Nat., ed. 10, i, 1758, 86 (India occidentali; based on *Vultur elegans*, Le Roi des Vautours, Edwards, Aves, 2, pl. 2; *Vultur*, Albin, Av., 2, p. 4, pl. 4); ed. 12, i, 1766, 122.—Gmelin, Syst. Nat., i, pt. 1, 1788, 246.—Latham, Index Orn., i, 1790, 4.—Forster, *in* Levaillant's Hist. Nat. Ois. d'Afr., 1798, pl. 13.—Daudin, Traite d'Orn., ii, 1800, 9, pl. 1.—Temminck, Cat. Syst., 1807, 7.—Shaw, Gen. Zool., vii, pt. 1, 1809, 39, pl. 13.—Schomburgk, Reis. Brit. Guiana, i, 1847, 464, 465 (Pirara, Brit. Guiana; habits; descr. female).—Miller, Condor, xxxiii, 1931, 71 (osteology).—Harper, Auk, liii, 1936, 390, text.—American Ornithologists' Union, Auk, lxii, 1945, 439 (nomencl.).

Cathartes papa Illiger, Prodromus Orn., 1811, 236.—Lichtenstein, Verz. Säug. und Vögel Mus. Berlin, 1818, 30.—Spix, Av. Bras., i, 1824, 1, pl. 1 (young plumage).—Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 23; Contr. Maclurian Lyc., i, 1827, 10.—Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 56 (Rio Itapimirim, Rio Peruhype, Rio Ilhéos, and Capitâs Filioberto).—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 40; ed. 2, 1840, 39.—Schlegel, Mus. Pays-Bas, ii, No. 10, livr. 2, 1863, 1 (monogr.); No. 36, livr. 10, 1873, 138.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 22 (Mexico; Brit. Guiana; Rio Amazon); Linn. Soc. London Journ. Zool., xiii, 1876, 18, map 2 (geogr. range).—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 43 (Tehuantepec, Oaxaca).—Boucard, Liste Ois. Recol. Guat., 1878, 21 (Guatemala; habits); Proc. Zool. Soc. London, 1878, 45 (San Mateo, Costa Rica).—Sumichrast, La Naturaleza, v, 1882, 235 (Veracruz; Río Coatzacoalcos).—Lillo, Bol. Ofic. Quimica Tucumán, ii, 1889, 77 (Tucumán).—Holmberg, Segundo Censo. Argent., i, Aves, 1898, 504 (descr.); El Hornero, vii, 1939, 154 (Argentina; common names).—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 88 (Rio Parnahyba, ne. Brazil).—Harper, Auk, liii, 1936, 383, text (descr.).

Gypagus papa Vieillot, Nouv. Dict. Hist. Nat., xxxvi, 1819, 456, pl. R. II, fig. 1.—Vieillot and Oudart, Gal. Ois., i, 1825, 11, pl. 3.—Sclater and Salvin, Proc. Zool. Soc. London, 1879, 542 (Colombia), 639 (Bolivia).—American Ornithologists' Union, Check-list, 1886, 352 (Hypothetical List, No. 12); ed. 2, 1895, 329 (Hypothetical List, No. 12).—Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 169 (Veracruz).—Salvin, Ibis, 1886, 78 (Brit. Guiana).—Ridgway, Man. North Amer. Birds, 1887, 219.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 127 (Costa Rica).—Quelch, Timehri, ser. 2, iv, 1890, 327 (Berbice, Brit. Guiana).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 148 (Chapada, Matto Grosso, sw. Brazil); xiii, 1900, 129 (Bonda,

[13] Five specimens, three males, two females. Also several unsexed adults examined, with similar measurements. The middle toe without the claw is 20 to 23 mm. shorter than the measurements given for the whole toe.

Santa Marta, Colombia).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 522 (Río Escondido, Nicaragua; habits).—Sclater, Proc. Zool. Soc. London, 1894, 163 (wood cut of downy young).—Underwood, Ibis, 1896, 446 (Volcán de Miravalles, Costa Rica).—Loat, Ibis, 1898, 563 (Brit. Guiana).—Bangs, Proc. Biol. Soc. Washington, xiii, 1899, 92 (Chirua, Santa Marta, Colombia).—Sharpe, Hand-list, i, 1899, 240.—Salvadori, Boll. Mus. Zool. Torino, xv, 1900, 14 (Urucum, Matto Grosso, sw. Brazil).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 27 (Gualaquiza, e. Ecuador; Foresta del Río Peripa, w. Ecuador).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 131 (Mazatlán, Sinaloa; Acaponeta, Tepic; San Andrés Tuxtla, Pecaro, Orizaba, and Río Coatzocoalcos, Veracruz; Santa Efigenia, Chimalapa, and Cacoprieto, Oaxaca; Tonalá, Chiafos; Coban, San Gerónimo, Escuintla, Masagua, and Vera Paz, Guatemala; Omoa and San Pedro, Honduras; San Juan del Sur, San Juan del Norte and Río Escondido, Nicaragua; San Mateo, Pacaca, La Palma de Nicoya, Miravalles, Pirris, and Pozo Azul, Costa Rica; Panama, South America).—Lillo, Anal. Mus. Nac. Buenos Aires, viii, 1902, 206 (Sierra del Alto de las Salinas and San Javier, Tucumán); Rev. Letras y Cienc. Soc., iii, 1905, 63 (Sierra del Alto de las Salinas and in the forests of San Javier, Tucumán).—Oates, Cat. Birds' Eggs Brit. Mus., ii, 1902, 220 (eggs).—Bruch, Rev. Mus. La Plata, xi, 1904, 250 (Salta).—Ihering, Rev. Mus. Paulista, vi, 1904, 337 (Paraguay), 450 (Rio Juruá, Amazonas).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 80 (Los Amates, Guatemala; fresh colors of unfeathered parts).—Ihering and Ihering, Av. Brazil, 1907, 81 (Rio Grande do Sul; São Paulo; lower Amazon; Matto Grosso; Borba; Rio Branco).—Berlepsch, Nov. Zool., xv, 1908, 289 (Cayenne).—Dabbene, Orn. Argent., 1910, 238, 249 (Tucumán; e. Salta; distr.).—Hellmayr, Nov. Zool., xvii, 1910, 509 (Borba, Amazonas, Brazil).—Beebe and Beebe, Our Search for a Wilderness, 1912, 137 (Barima, Brit. Guiana).—Brabourne and Chubb, Birds South Amer., i, 1912, 61.—Bertoni, Fauna Paraguaya, 1913, 41 (upper Río Paraná); Anal. Soc. Cient. Argentina, lxxv, 1913, 78.—Snethlage, Bol. Mus. Goeldi, viii, 1914, 121 (Maracá, Campo do Ariramba).—Cherrie, Bull. Brooklyn Inst. Sci., ii, No. 6, 1916, 339 (Orinoco Valley, Venezuela).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 237 (Cauca and Magdalena Valleys, Colombia).—Stone, Proc. Acad. Sci. Philadephia, 1918,248 (Canal Zone).—Swann, Synopt. List Accip., pt. 1, 1919, 1.—Delacour, Ibis, 1923, 144 (Apure, Venezuela).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 120 (Panama Canal Zone).—Groebbels, Der Vögel, 1, 1932, 646 (longevity).—Harper, Auk, liii, 1936, 386, text.

Sarcoramphus papa Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 6.—Lesson, Traité d'Orn., 1831, 26.—d'Orbigny and Lafresnaye, Synop. Avium, 1837, 1 (Paraguay; Brazil; Peru; Bolivia).—Bonaparte, Geogr. and Comp. List, 1838, 1; Consp. Gen. Av., i, 1850, 9.—d'Orbigny, Amér. Mérid., iv, pt. 3, 1839, 28 (Mexico; Colombia; Guiana; Brazil; Peru; Bolivia; habits).—Tschudi, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 262 (Peru); Fauna Peruana, Aves, 1844, 69.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 3 (Mexico; Brit. Guiana).—Descourtilz, Orn. Bres., 1854–56, pl. 1, upper fig. and text.—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1863, 2 (Panama); Mem. Boston Soc. Nat. Hist., ii, 1874, 303 (Mazatlán, Sinaloa).—Léotaud, Ois. Trinidad, 1866, 1 (Trinidad).—Pelzeln, Orn. Bras., i, Abth., 1868, 1; Abth. 4, 1870, 391.—Brown, Canoe and Camp Life in British Guiana, 1876, 1177 (Siparuni River, British Guiana).—Cubas, Cuadro Geogr. Estadístico Descr. e Hist. de Los Estados Unidos Mexicanos,

1884, 177 (common names; Mexico).—Rovirosa, La Naturaleza, vii, 1887, 378 (Tabasco and Chiapas).—American Ornithologists' Union, Auk, xxv, 1908, 369; Check-list, ed. 3, 1910, 371; ed. 4, 1931, 369; Auk, lxii, 1945, 439 (nomencl).—Carriker, Ann. Carnegie Mus., vi, 1910, 441 (Bonilla, Cariblanco de Sarapiqui, and Pozo Azul de Pirris, Costa Rica; habits).—Chubb, Birds Brit. Guiana, i, 1916, 206 (habits).—Hellmayr, Nov. Zool., xxviii, 1921, 174 (crit.); Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 451 (Piauhy, Brazil).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 141 (Bonda and Minca, Santa Marta, Colombia).—Giacomelli, El Hornero, iii, 1923, 78 (La Rioja, Argentina).—Arribalzaga, El Hornero, iii, 1924, 271 (common names; Argentina).—Nitsche, El Hornero, iii, 1924, 375 (S. Amer. folklore).—Swann, Monogr. Birds Prey, i, pt. 1, 1924, 5 (descr.; syn.; distr.; biol. notes).—Laubmann, Deutsch. Gr. Chaco Exp., Vög., 1930, 90 (Bolivia).—Naumburg, Bull. Amer. Mus. Nat. Hist. lx, 1930, 100 (Matto Grosso, Brazil).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 364 (Río Frío, Colombia).—Peters, Check-list Birds of World, i, 1931, 190.—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras; Lancetilla, San Pedro, Omoa).—Belcher and Smooker, Ibis, 1934, 586 (no longer occurs in Trinidad).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, lxxxvi, 1934, 370 (Descalvados, Matto Grosso, Brazil).—Anonymous, El Hornero, vi, 1935, 185 (distr.).—Harper, Auk, liii, 1936, 382, 384, 385, 387, 390–391, text (meas.).—Steullet and Deautier, Obra del Cincuentenario Mus. Plata, i, 1936, 378 (syn.; records; distr.; Argentina).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 37 (Azuero Peninsula, Panama; spec.; colors of soft parts).—Pinto, Rev. Mus. Paulista, xxii, 1938, p. 58 (distr.); xxiv, 1940, 228 (Pernambuco).—Sassi, Temminckia, iii, 1938, 296 (Costa Rica, Bebedero; spec.).—Dugand, Rev. Acad. Colomb., iii, 1940, 216 (s. Mexico to Argentina).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Matamoros and Pacaitun, Yucatán).—Brodkorb, Mus. Zool. Univ. Michigan Misc. Publ. 56, 1943, 25 (Mexico: Tabasco, Chiapas, Veracruz).—Fisher, Condor, xlv, 1943, 69, in text (pterylosis); xlvi, 1944, 274 (skulls); Auk, lxii, 1945, 126, 127 (flight and musculature).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Hand., xxii, No. 3, 1945, 25 (Rio Juruá, w. Brazil; spec.; meas.), xiii, No. 1, 1945, 46 (n. Bolivia; spec.; meas.).

Sarcorhamphus papa Hartlaub, Index Azara's Apunt., 1847, 1.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 743.—Cassin, Cat. Vult. Mus. Philadelphia Acad., 1849, 4; Illustr. Birds California, Texas, etc., 1854, 61.—Bougau, Proc. Zool. Soc. London, 1851, 53 (Brit. Guiana; habits).—Sclater, Proc. Zool. Soc. London, 1857, 227 (San Andrés Tuxtla, Veracruz).—Coues, Proc. Acad. Nat. Sci. Philadelphia, xviii, 1866, 49 (Rio Verde, Ariz.?); Amer. Nat., v, 1871, 367; Bull. Nuttall Orn. Club, vi, 1881, 248 (Rio Verde, Ariz.?).—Holmberg, Nat. Arg., 1, 1878, 93 (Oran, Salta).—Fontana, Gran Chaco, 1881, 192 (Chaco).—Taczanowski, Orn. Pérou, i, 1884, 81.—von Boeck, Mittheil. Orn. Ver. in Wien, 1884, 161 (Thale, Cochabamba, Bolivia).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 69 (Trinidad), lv, 1926; 216 (distr. Ecuador).—Ihering, Rev. Mus. Paulista, iv, 1900, 89 (descr. eggs), 267 (egg meas.).—Goeldi, Ibis, 1903, 497 (Rio Capim, ne. Brazil).—Reichenow, Die Vögel, i, 1913, 362.—Swann, Synop. Accip., pt. 1, 1921, 2.—Bangs and Barbour, Bull. Mus. Comp. Zool., lxv, 1922, 193 (Pacora and Sambú Valley, Darién).—Austin, Bull. Mus. Comp. Zool., lxix, 1929, 372 (Mountain Cow, Brit. Honduras).—Peters, Bull. Mus. Comp. Zool., lxix,

1929, 414 (Lancetilla, Tela, Honduras); lxxi, 1931, 308 (Almirante, Panama).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 364 (Rio Frio, Magdalena, Colombia).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 148 (Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 297 (Panama—throughout, uncommon).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 211 (ne. Nicaragua; spec.; colors; frequently seen).—Lehmann, Rev. Acad. Colomb., iii, 1940, 457 in text, 458 (distr., col. fig.; nest and eggs, plum.; Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 110 (lower Amazonia; Pará, Rio Maracá, and Santarém; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 199 (Matamoros, Yucatán).—del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas; spec.).

Sarcorrhamphus papa Burmeister, Syst. Übers Th. Bras., ii, 1856, 28.

Sarcorhampus papa Van Tyne, Univ. Michigan Mus. Zool. Misc. Publ. 27, 1935, 15 (seen Uaxactún, Petén, Guatemala).

Gyparchus papa Moore, Proc. Zool. Soc. London, 1859, 51 (Omoa and San Pedro, Honduras).—Sclater and Salvin, Ibis, 1859, 214 (Guatemala; habits); Proc. Zool. Soc. London, 1867, 589 (lower Amazon, Brazil); 1873, 301 (Xeberos and Santa Cruz, e. Peru; habits). Nom. Av. Neotr., 1873, 123—Sclater, Proc. Zool. Soc. London, 1860, 194 (descr. egg).—Gurney, Descr. Cat. Rapt. Birds, Norfolk and Norwich Mus., pt. 1, 1864, 35 (Guatemala; habits); List Diurn. Birds Prey, 1884, 3; Cat. Birds Prey, 1894, 17.—Taylor, Ibis, 1864, 79 (Trinidad; habits).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 134 (Gulf of Nicoya, Costa Rica).—Frantzius, Journ. für Orn., 1869, 370 (Costa Rica).—Nutting, Proc. U. S. Nat. Mus., v, 1882, 405 (La Palma de Nicoya, Costa Rica); vi, 1883, 378 (rare, Nicaragua).—Ridgway, Bull. Nuttall Orn. Club, vii, 1882, 258 (Arizona?).—Berlepsch, Journ. für Orn., 1887, 122 (Paraguay).—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 51 (Buenos Aires, Costa Rica).—Tegetmeier, Field, lxxxii, 1893, 971 (woodcut of downy young).—Koenigswald, Journ. für Orn., 1896, 387 (São Paulo, s. Brazil).—Snethlage, Journ. für Orn., 1928, 553, 572, 672 (breeding habits Brazil).

Catharistes Papa Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7–8, 1894, p. 222 (Mexico, distr.).

Sarcorhamphus sacer Cassin, Illustr. Birds California, Texas, etc., 1854, 59 (Florida; ex *Vultur sacer* Bartram, Travels in North and South Carolina, 1791, 150).

Sarcoramphus sacer Harper, Auk, liii, 1936, 384, text.

Cathartes sacer Sharpe, Cat. Birds Brit. Mus., i, 1874, 22, footnote.—Harper, Auk, liii, 1936, 385, text.

Vultur sacra Harper, Auk, liii, 1936, 381–92 (crit.; hist.).

Sarcoramphus papa sacra McAtee, Auk, lix, 1942, 104, in text (Florida.).

Sarcoramphus Salle and Parzudakí, Cat. Oiseaux du Mexique, 1862, 1.

Genus CORAGYPS Le Maout

Coragyps "Isid. Geoffroy" *Le Maout*, Hist. Nat. Ois., 1853, 57, 66. (Type, by monotypy, *Vultur atratus* Wilson = *V. urubu* Vieillot.[14])

Corapygus (emendation) Giebel, Thes. Orn., i, 1872, 777.

Catharista (not of Vieillot, 1816, as restricted by Gray, 1855) Sundevall, Öfv.

[14] See Stone, Rep. Princeton Univ. Exped. Patagonia, ii, pt. iv, 1915, 540; Chubb, Birds British Guiana, i, 1916, 208.

Svenska Vet.-Akad. Forh., 1874, 38. (Restricted to "*Vultur foetidus* Illiger" = *V. urubu* Vieillot.)

Catharistes (emendation of *Catharista* Vieillot) Sharpe, Cat. Birds Brit. Mus., i, 1874, 23.

Cathartes Reichenow, Die Vögel, i, 1913, 361, part.

Medium-sized, heavily built *Cathartes* (wing about 409–454 mm.) with nostril relatively small and narrow, occupying only posterior half of nasal fossa, narrowly acuminate anteriorly; wing relatively short (less than six times as long as tarsus), the longest primaries scarcely, if at all, extending beyond tips of longest secondaries; t less than half as long as wing, truncate; middle toe, without claw, shorter than tarsus; sacral vertebrae, 14; cervical ribs, 3 pairs; sacral ribs, 3 pairs; the adult with bill and naked skin of head and upper neck blackish gray or dusky (that of neck prominently corrugated in adults), and feet also dusky (in life).

Bill relatively long and slender, the distance from base of culmen to tip of maxilla equal to about half the distance from same point to anterior angle of eye (as in *Cathartes*) but less than distance from same point to posterior end of nostril; commissure long, but rictus decidedly anterior to anterior angle of eye; cere more depressed and less contracted anteriorly than in *Cathartes*, not elevated or arched posteriorly, its length on top much greater than distance from posterior angle of eye to posterior line of occiput (as in *Cathartes*) but more than four times the depth of maxilla at anterior end of nostril, the depth of mandible at same point being equal to or greater than that of maxilla; its anterior outline sloping more backward than downward from base of cere to maxillary tomium, which it touches beneath middle portion of nostril; nostril relatively small and narrow, occupying only posterior half (approximately) of nasal fossa, narrowly acuminate anteriorly, narrowly rounded posteriorly, pervious only for upper-posterior portion, its greatest width equal to not more than one-third its length. Head and upper neck (except hindneck) bare, the skin on sides of neck (from sides of middle foreneck and thence to nape, along edge of feathered portion, transversely corrugated (in adults)), more or less downy in young. Wing large and broad but relatively short through abbreviation of primaries, the tips of which scarcely extend beyond tips of longest secondaries, the fourth or fifth longest (the third, fourth, and fifth subequal), the first (outermost) intermediate between sixth and seventh; the outer five with inner webs sinuated. Tail shorter than wing, truncate or faintly emarginate, the rectrices (12) moderately broad, with rounded tips. Tarsus more than one-sixth as long as wing, slightly longer than middle toe without claw, much stouter than in *Cathartes* but similarly scaled; lateral toes unequal, the outer slightly longer than the inner.

Plumage and coloration.—Plumage commencing at nape with small, rather broad, normally shaped feathers, which gradually increase in size downward, covering the entire hind neck and sides of neck; plumage in general firm and hard, that of upperparts with feathers distinctly outlined, that of underparts more blended. General color black (without any metallic gloss), the primaries grayish basally (more whitish on under surface), their shafts white; bill and naked skin of head and foreneck grayish black or dusky, in both adults and young.

Nidification.—No nest, but eggs (1 or 2) deposited in a cavity or recess among rocks, in hollow of a log, stump, or tree trunk, or on the ground; eggs ovate or broadly elliptical-ovate, white, buffy white, or greenish white; more or less spotted or blotched with reddish brown and purplish gray.

Range.—Continental Tropical, Subtropical, Warm-Temperate America, but apparently absent from Baja California and southern California and the West Indies except Cuba and Jamaica and Galápagos Archipelago. (Monotypic.)

The single species belonging to this exceedingly well-characterized genus has much the same general geographic range as *Cathartes aura* except that it does not extend nearly as far within either the northern or southern temperate areas. *Coragyps* is conspicuously unlike *Cathartes* in its manner of flight and appearance when on the wing. Although often soaring, its usual flight consists of a succession of rapid wing beats alternating with short stretches of sailing with wings outstretched. In flight the shorter and broader wings and shorter truncated tail (the latter appearing as if the terminal portion had been cut off squarely across) give *Coragyps* a quite distinctive appearance. There are also marked differences in manners; for example, *Coragyps* often soars aloft at such a height as to be nearly if not quite invisible, but its keen eye quickly detects a carcass or even a morsel of food on the ground, when it descends almost with the velocity of a thunderbolt, checking its fall by suddenly opening its wings just before it reaches the surface of the earth. It is much more aggressive than *Cathartes*, which it drives away from a carcass or other food, often itself to be driven off by the arrival of a caracara (*Polyborus*).

CORAGYPS ATRATUS (Bechstein)

Black Vulture

Adults (sexes alike).—Entire plumage uniform dull black with a very faint iridescence on the wings and tail; primaries grayish basally on the upper surfaces, hoary whitish to silver gray on the lower surfaces, the shafts white; bill dusky; dark brown or blackish with yellow-

ish or whitish tip; iris and feet dark brown; naked skin of head and upper neck blackish, the bare area extending farther down in front than behind.

Immature.—Not obviously different from adults, but with no iridescence on the wings, and the feathering extending farther up on the head, the naked skin of the head and neck more or less densely covered

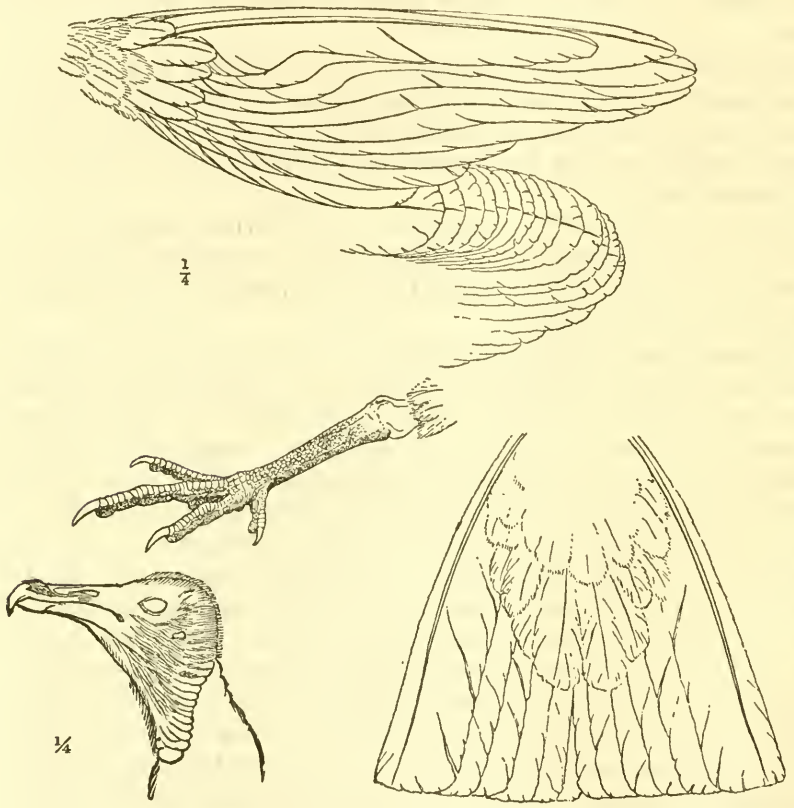

FIGURE 2.—*Coragyps atratus.*

with small hairlike or bristly feathers, the skin of the neck not corrugated as in adults, and bill without the light tip, wholly dusky.

Natal down.—Covered, except on the head, with long, thick, rich, buffy down.

Adults (sexes alike).—Wing 381–454.5 (426.2); tail 153–216 (181.1); exposed culmen from front of forehead 50.8–61 (55.9), culmen from

front end of nostril 34.2–40.5 (36.6); tarsus 73.6–73.8 (79.2); middle toe without claw 73.5–79 (76.3 mm.).[15]

Range.—Tropical and warm-temperate portions of continental America in general; north regularly to Virginia eastern West Virginia, and southern Maryland (coast), southern Indiana, southern Illinois, southern Ohio, Kansas, Missouri, western Texas, and northwestern Mexico (as far as Guaymas; not found north of Mexico west of western Texas and Kansas except in southern Arizona); occasionally to southern Ohio and South Dakota, accidentally or casually to southern Ontario, southwestern Quebec, New Brunswick, Novia Scotia, Maine (vicinity of Calais), Massachusetts, northern Ohio, northern New York, northern North Dakota (Fargo),[16] and Arizona, one doubtful record each for Jamaica and Cuba [17]; otherwise unknown in the West Indies although it may have occurred at one time in Hispaniola,[18] south through Mexico, Honduras, Guatemala, and Panama, throughout all South America to Argentina (south as far as Río Negro, Patagonia, but scarce there) and Chile (from Coquimbo south to Chiloé and Llanquihue).

Type locality.—Florida.

Vultur atratus Bechstein, Anhang., i, Latham's Allg. Uebers. Vögel, 1793, 655 (based on "Black Vulture or Carrion Crow" Bartram, Travels, 1791, 152, 289 (St. Johns River, Fla.).—Meyer, Zool. Ann., i, 1794, 290.—Ord, *in* Wilson's Amer. Orn., ix, 1814, 104, pl. 75, fig. 2 (Charleston and Georgetown, S. C., and Savannah, Ga.; type now in coll. Mus. Comp. Zool.; see Faxon, Bull. Mus. Comp. Zool., lix, 1915, 134; ex *Vultur atratus*, black vulture or carrion crow, Bartram's Travels, 1792, 289).—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, 1824, 342 (crit.); iv, 1824, 269 (crit.).—Audubon (Brewster ed.), Edinburgh Journ. Sci., vi, 1827, 156.

Cathartes atratus Bonaparte, Journ. Acad. Nat. Sci., Philadelphia, iv, pt. 2, 1824, 269; Obs. Wilson's Amer. Orn., 1826, [128]; Consp. Gen. Av., i, 1850, 9.—Lesson, Man. d'Orn., i, 1828, 6.—Jameson, ed. Wilson's Amer. Orn., i, 1831, 10.—Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 6.—Audubon,

[15] Seventy specimens, 47 from North and Middle America, 23 from South America. By many authors the South American black vulture has been recognized as a distinct race, *C. a. foetens* (Lichtenstein), based on smaller size. Examination of this series indicates that while North American examples (true *atratus*) do sometimes attain larger proportions than do South American individuals, yet the variational limits of the latter (*foetens*) are wholly contained within those of the former (except for one very small Chilean specimen, w. 405 mm.) and the average difference between the two groups is only 2.5 percent. Thus, although it is possible to tell large North American birds, it is impossible to identify any South American specimen on the basis of size. Consequently I consider the two inseparable systematically. It may be noted, however, that the eggs of the South American birds are smaller than North American ones.

[16] Cf. Boardman, Forest and Stream, xx, No. 6, 1883, 106.

[17] Cf. Barbour, Birds of Cuba, 1923, 43.

[18] Cf. Wetmore and Swales, Birds Haiti and Dominican Republic, 1931, 108, footnote.

Birds Amer., 8vo ed., i, 1840, 17, pl. 3.—Brewer, ed. Wilson's Amer. Orn., 1840, 682; North Amer. Ool., i, 1857, 4, pl. 1, figs. 3, 4.—Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 7 (range, habits).—Fraser, Proc. Zool. Soc. London, 1843, 108 (Chile).—DeKay, New York Zool., ii, 1844, 3.—Woodhouse, Rep. Sitgreaves' Expl. Zuñi and Colorado Rivers, 1853, 58 (observ., syn.).—Cassin, Illustr. Birds. California, Texas, etc., 1854, 58; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 5; Rep. U. S. Naval Astron. Exped. (Gilliss), ii, 1855, 173 (Chile; crit.).—Strickland, Orn. Syn., i, 1855, 2.—Putnam, Proc. Essex Inst., i, 1856, 223 (Swampscott, Mass., Nov. 1850).—Sclater, Proc. Zool. Soc. London, 1857, 211 (Orizaba, Vera-cruz); 1860, 96 (Perrucho and Puellaro, Ecuador; crit.), 287 (Babahoyo, Ecuador, habits); 1867, 338 (Chile); Revised List Birds Jamaica, 1910, 13.—Sclater and Salvin, Ibis, 1859, 213 (Guatemala), Proc. Zool. Soc. London, 1867, 589 (Pará, Brazil); 1873, 301 (e. Peru); 1879, 542 (Colombia; descr., nest and eggs), 639 (Bolivia); Nom. Av. Neotr., 1873, 123.—Baird, Cat. North Amer. Birds, 1859, No. 3; Taylor, Ibis 1860, 222 (Honduras; habits); 1862, 128 (Florida); 1864, 677 (Trinidad).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1863, 2 (Panama); Mem. Boston Soc. Nat. Hist., ii, 1874, 303 (Mazatlán, Sinaloa; habits).—March, Proc. Acad. Nat. Sci. Philadelphia, xv, 1863, 151 (Jamaica).—Schlegel, Mus. Pay-Bas, ii, No. 10, livr. 2, 1863, 2 (monogr.); No. 36, livr. 10, 1873, 139, part.—Allen, Proc. Essex Inst., iv, 1864, 81 (Gloucester, Mass., Sept. 28, 1863); Bull. Mus. Comp. Zool., ii, 1871, 312 (crit.); Amer. Nat., iii, 1869, 646 (Hudson, Mass., 1869; 1 killed, several seen).—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 47, part (Orizaba, Veracruz; Dueñas, Guatemala, Chile; Angostura, Venezuela; Puellaro and Perucho, Ecuador; habits).—Dresser, Ibis, 1865, 322 (s. Texas).—Boardman, Amer. Nat., iii, 1869, 498 (Calais, Maine).—Wyatt, Ibis, 1871, 382 (Colombia).—Berlepsch, Journ. für Orn., 1873, 292 (Santa Catarina, s. Brazil; geogr. range; synonymy; crit.); Ibis, 1884, 438 (Angostura, Venezuela; crit.); Journ. für Orn., 1887, 122 (Paraguay).—Coues, Key North Amer. Birds, 1872, 222; Check List North Amer. Birds, 1873, No. 366; Birds Northwest, 1874, 383 (synonymy; range).—Layard, Ibis, 1873, 395 (Pará; habits).—Kirtland, Proc. Cleveland Acad. Sci., 1874, 206 (Ohio).—Langdon, Bull. Nuttall Orn. Club, ii, 1877, 109 (Madisonville, Ohio, Dec. 20, 1876, 3 spec., Jan. 1, 1877).—Boucard, Proc. Zool. Soc. London, 1878, 45 (Costa Rica).—Lawrence, Bull. Nuttall Orn. Club, v, 1880, 116 (Sandy Hook, Long Island, spring of 1877).—Berier, Bull. Nuttall Orn. Club, vi, 1881, 126 (Coney Island beach, 1 spec. found dead).—Dalgleish, Proc. Roy. Phys. Soc. Edinburgh, vi, 1881, 236 (e. Uruguay; habits; descr.; eggs).—Forbes, Ibis, 1881, 354 (ne. Brazil; habits).—Wheaton, Rep. Birds Ohio, 1882, 439 (Ohio; syn.; descr.; range; hist.).—Barrows, Auk, i, 1884, 113 (Sierra de las Pampas and Carhué, Argentina).—Berlepsch, Journ. für Orn., 1884, 319 (Colombia); 1885, 119 (Babahoyo, w. Ecuador); 1887, 122 (Paraguay).—Salvin, Ibis, 1886, 78 (Brit. Guiana).—Rovirosa, La Naturaleza, vii, 1887, 379 (Tabasco, Río Macuspana).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1892, 388 (Iça, Peru).—Kerr, Ibis, 1892, 143 (lower Río Pilcomayo, Argentina); 1901, 231 (Villa Concepción, Paraguay).—Aplin, Ibis, 1894, 196 (Uruguay; habits).—Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil).—Underwood, Ibis, 1896, 447 (Volcán de Miravalles, Costa Rica).—Lane, Ibis, 1897, 184 (Chile; habits).—Loat, Ibis, 1898, 559 (Georgetown, Brit. Guiana; habits).

Coragyps atratus Bonaparte, Rev. Mag. Zool., vi, 1854, 530.

Catharista atrata Gray, Hand-list, i, 1869, 3, No. 16.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 351; Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 26 (lower Wabash Valley); Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. North Amer. Birds, 1881, No. 455; Orn. Illinois, i, 1889, 492.—Brewer, Proc. Boston Soc. Nat. Hist., xvii, 1875, 445 (accidental, Massachusetts; Maine).—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 44 (ubiquitous, Tehuantepec, sw. Mexico).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; sev. records).—Brown, Bull. Nuttall Orn. Club, vii, 1882, 41 (Boerne, Kendall County, sw. Texas, common).—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 538; Key North Amer. Birds, ed. 2, 1884, 560.—Fox, Bull. Nuttall Orn. Club, vii, 1882, 192 (Lookout Mountain, e. Tennessee, common).—Wheaton, Rep. Birds Ohio, 1882, 579 (Ohio; listed).—Cory, List Birds West Indies, 1885 and rev. ed., 1886, 23 (Jamaica).—Goss, Auk, ii, 1885, 311 (Ellis, w. Kansas, March 27, 1885).—Thompson, Auk, ii, 1885, 109 (Cincinnati, Ohio, Dec. 4, 1881).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 326, 125.—Butler, Bull. Brookville Soc. Nat. Hist., No. 2, 1886, 22 (Franklin County, Ind., Dec., Feb., April); Proc. Indiana Acad. Sci. for 1894 (1895), 166 (Monrovia, Morgan County, Ind., 3 spec., Nov. 24, 1894); Rep. State Geol. Indiana for 1897 (1898), 768 (Brookville, Ind., May 17, 1897; Knox, Monroe, Decatur, Franklin, and Orange Counties; Morgan County, Nov. 24, 1894; Putnam County, Nov. 18, 1896, common at Bicknell, Knox County, since 1889; breeding in Knox and Gibson Counties and near Brookville).—Cory, Auk, iv, 1887, 51 (West Indian refereuces and localities; descr.); Birds West Indies, 1889, 209 (Jamaica?); Auk, viii, 1891, 294 (Cuba).—Sennett, Auk, iv, 1887, 25 (descr., downy young).—Goss, Hist. Birds Kansas, 1891, 245 (Kansas; rare summer resident; eggs; records; descr.; habits).—Attwater, Auk, ix, 1892, 233 (San Antonio, Tex., common resident).—Dutcher, Auk, x, 1893, 82 (Calais, Maine, Nov. 1892; sixth record!).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 522 (Río Escondido, Nicaragua).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 69 (Trinidad; habits).—Gurney, List Diurn. Birds Prey, 1894, 5; Cat. Birds of Prey, 1894, 17.—Dionne, Auk, xv, 1898, 53 (near Quebec, Canada, Oct. 23, 1897).—Piers, Auk, xv, 1898, 196 (Pugwash, Cumberland County, Nova Scotia, Jan. 12, 1896).—Ihering, Rev. Mus. Paulista, iii, 1899, 340 (São Paulo, s. Brazil); iv, 1900, 90 (descr., eggs), 162 (Cantogallo, São Paulo).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 132 (Mexican, Central American, and West Indian localities and references).—Storer, Auk, xxiii, 1906, 222 (Waltham, Mass., Sept. 15, 1905).—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 88 (Rio Preta, ne. Brazil).—Snethlage, Journ. für Orn., lxxvi, 1928, 553, 572, part (eggs, breeding seasons, S. Amer.).—del Campo, Anales Inst. Biol., viii, No. 3, 1937, 337 (Morelos; Cuernavaca; spec.).

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(Hidalgo, Jacala; infrequent).—Engels, Auk, lviii, 1941, 63, text, and 64, diagram (wing skeletal ratios).—Harris, Condor, xliii, 1941, 36, in text (California; habits compared with condor).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, No. 9 (Michoacán; Apatzingan area; abundant).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 12, 1942, 188 (se. Coahuila; rare).—Sutton and Pettingill, Auk, lix, 1942, 8 (Gómez Farias region, sw. Tamaulipas; abundant).—Sutton and Phillips, Condor, xliv, 1942, 59 (Arizona: Papago Indian Reservation).—Allan and Sime, Wils. Bull., lv, 1943, 32 (Texas Panhandle).—Brodkorb, Univ. Michigan Mus. Zool. Misc. Publ. 56, 1943, 26 (Mexico: Tabasco).—Fisher, Condor, xlv, 1943, 72, in text (pterylosis).—Stewart, Auk, lx, 1943, 390 (Shenandoah Mountains; breeds).—van Rossem, Condor, xlv, 1943, 121 (Lower California; Cerralvo Island).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).—Burleigh Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 356 (Gulf Coast of Mississippi; common on mainland).—Fisher, Condor, xlvi, 1944, 274 (skulls).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 561 (California, hypothetical).—Bond, Check List Birds West Indies, ed. 2, 1945, 20 (West Indies; sight records).—Fisher, Auk, lxii, 1945, 127 (flight and musculature).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; common res.).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 8 (Nebraska; accidental—1 record).—McIlhenny, Auk, lxii, 1945, 137, in text (feeding habits; Louisiana).—van Rossem, Occ. Pap. Mus. Zool., Louisiana State Univ., No. 21, 1945, 52 (Sonora; common, res.).— Haverschmidt, Condor, xlix, 1947, 210 (feeding on sweetpotatoes, coconuts, and fruit of the African oil palm).—Lovell, Auk, lxiv, 1947, 131 (Kentucky; food).—Miller, Auk, lxiv, 1947, 354 (Upper Magdalena Valley, Colombia).—Stewart and Robbins, Auk, lxiv, 1947, 268 (largely restricted to Coastal Plain of s. Maryland, quite common).

Coragups Atratus Taverner, Birds Canada, 1934, 116 (Canada; genl.).

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Mass.; acc. vis.; spec.); No. 5, 1920, 98 (Essex County, Mass.; records).—Cole, Bull. Mus. Comp. Zool., l, 1906, 120 (Chichen Itzá, Yucatán; habits).—Widmann, Birds Missouri, 1907, 87 (rare resident).—Knight, Birds Maine, 1908, 2 (rare straggler).—Stone, Birds New Jersey, 1908, 157 (New Jersey; 1 record, 1877); Proc. Acad. Nat. Sci. Philadelphia, 1918, 248 (Canal Zone; listed).—Woodruff, Auk, xxv, 1908, 199 (Shannon County, Mo.).—Braislin, Auk, xxvi, 1909, 315 (Plum Island, Long Island, May 19 or 20, 1895).—Cory, Publ. Field Mus. Nat. Hist. No. 131, 1909, 449 (s. Illinois); Publ. 137, 1909, 241, 253 (Margarita Island, Venezuela).—Embody, Auk, xxvii, 1910, 171 (Ashland, Va., common).—Howell, Auk, xxvii, 1910, 301 (Lawrenceburg, e. Tennessee, in winter only).—Wayne, Birds South Carolina, 1910, 68 (habits).—Bailey, Auk, xxviii, 1911, 112 (Elizabeth City, York and Warwick Counties, Va.).—Burtch, Auk, xxviii, 1911, 112 (Steuben County, N. Y., July 11, 1909).—Lacey, Auk, xxviii, 1911, 207 (Kerrville, Tex.; res.).—Bailey, Auk, xxix, 1912, 80 (mountains s. Pennsylvania, 2,000 ft.; common); Birds Virginia, 1913, 100 (Virginia; range; breeds; habits).—Smyth, Auk, xxix, 1912, 515 (Montgomery County, Va., Oct. 8 or 9, 1909; March 12, 1911; Jan. 22, 1912).—Bunker, Bull. Kansas Univ. Sci., vii, 1913, 146 (Kansas, very common res.).— Pember, Auk, xxx, 1913, 112 (Pawlet, Vt., July 7, 1912).—Sage, Bishop, and Bliss, Birds Connecticut. 1913, 74 (2 definite records).—Eaton, Birds New York, ii, 1914, 65 (rare straggler).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 238 (Santa Elena, Colombia); U. S. Nat. Mus. Bull. 117, 1921, 56 (1 Santa Ana, se. Peru).—Phillips, Auk, xxxiv, 1917, 478 (Wenham, Mass., Aug. 20, 1917).—Lamb, Auk, xxxv, 1918, 233 (Pigeon Cove, Mass., May 12, 1916).—Williams, Auk, xxxv, 1918, 477 (near Mount Vernon, Jennings County, Ind., 2 specs., May 5, 1918).—Barros, Rev. Chil. Hist. Nat., xxiv, 1920, 47 (Nilahue Valley, Chile).—Holt, Geol. Surv. Alabama, Mus. Pap. No. 4, 1921, 46 (Alabama; common; res.; breeds; habits).—Hunt, Auk, xxxviii, 1921, 377 (Tillar, Ark.; abundant).—Over and Thoms, Birds South Dakota, 1921, 81 (rare in summer).—Pemberton, Condor, xxiv, 1922, 12 in text (nesting, Green Island, Tex.).—Griscom, Birds New York City Region, 1923, 180 (status New York City region); Amer. Mus. Nov., No. 235, 1926, 12 (Quintana Roo, Yucatán).—Kimball, Condor, xxv, 1923, 109 in text (near Tucson, Ariz.).—Wood, Univ. Michigan Mus. Zool., Misc. Publ. 10, 1923, 37 (north of Sanborn, Barnes County, N. Dak., in 1880; flock).—Pindar, Wils. Bull., xxxvi, 1924, 204 (status, e. Arkansas).—Naumburg, Auk, xliii, 1926, 491 (breeds, s. United States to s. South America).—Baerg, Auk, xliv, 1927, 546 (Mount Magazine, Ark.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 121 (descr., habits, Panama).—Miller, Taylor, and Swarth, Condor, xxxi, 1929, 76, in text (wintering, Tucson, Ariz.).—Miller, Condor, xxxvii, 1935, 76, in text.—Murphey, Auk, lxii, 1945, 116 (Pearl Islands, Panama).—Sprunt, Auk, lxiii, 1946, 260 (predatory on living prey).

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Percnopterus urubu Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 7, pl. 31.

Catharistes urubu Posson, Auk, xvi, 1899, 195 (Shelby Center, Orleans County, w. New York, May 28, 1892).—Sharpe, Hand-list, i, 1899, 240.—Baer, Ornis, xii, 1904, 229 (Santa Ana, Tapia, and Criolla, Argentina).—Bruch, Rev. Mus. La Plata, xi, 1904, 251 (Oran, Salta, Argentina).—(?) Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (Saboga Island, Bay of Panama).—Warga, Aquila, xxx-xxxi, 1924, 341, 334, in text (tax.).

Catharistes urubu urubu Beebe, Zoologica, i, 1909, 79 (ne. Venezuela).

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Catharista atrata urubu Swann, Synopt. List Accip., pt. 1, 1919, 2 (North America; Central America; Cuba; Jamaica).

Coragyps urubu urubu American Ornithologists' Union, Auk, xxxvii, 1920, 444.—Henderson, Condor, xxiv, 1922, 26 in text (near Boulder, Colo., Oct. 8 or 9, 1921).—Barbour, Mem. Nutall Orn. Club, No. 6, 1923, 43,

footnote (does not occur in Cuba).—Howell, Birds Alabama, 1924, 128; ed. 2, 1928, 128 (distr., habits, Alabama).—Nice and Nice, Birds Oklahoma, 1924, 40 (genl., Oklahoma).—Swann, Monogr. Birds Prey, i, pt. 1, 1924, 7 (monogr.).—Bailey, Birds Florida, 1925, 65, pl. 35 (fig., distr., Florida).—Pindar, Wils. Bull., xxxvii, 1925, 85 (status, Fulton County, Ky.).—Simmons, Birds Austin Region, 1925, 93 (Austin region, Tex., habits, descr., etc.).—Fargo, Wils. Bull., xxxviii, 1926, 149 (Pinellas and Pasco Counties, Fla.).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 426 (habits, s. Florida).—McClellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 296 (María Madre, María Magdalena Islands, Mexico); ser. 4, xvi, 1927, 19 (María Madre, Tres Marías Islands; Matanchen, Mexico).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 92, pl. 38 (figs., descr., habits, New England).—Danforth, Wils. Bull., xl, 1928, 180 (El Cobre, Cuba).—Saunders, Auk, xlv, 1928, 385 in text (winter, Murray County, Okla.).—Cooke, Proc. Biol. Soc. Washington, xlii, 1929, 34 (Washington, D. C.).—Harper, Wils. Bull., xli, 1929, 236 (Randolph County, Ga.).—[Arthur?], Birds Louisiana, 1931, 190 (descr., status, Louisiana).—Murray, Auk, xlviii, 1931, 117, in text (n. of Mountain City, Tenn.).—Urner, Auk, xlviii, 1931, 117, in text (near New Egypt, N. J.).—Winsatt, Auk, lvi, 1939, 181, in text (Seneca, Md., nesting).

Cathartes foetens Lichtenstein, Säug. und Vögel Mus. Berlin, 1818, 30 (based on *Iribu* Azara; Brazil); Verz. Doubl., 1823, 63 (Brazil).—Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 58.—Tschudi, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 262 (Peru).—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 742.—Burmeister, Journ. für Orn., 1860, 241 (Río de la Plata).—Leotaud, Ois. Trinidad, 1866, 2.—Frantzius, Journ. für Orn., 1868, 370 (Costa Rica).—Pelzeln, Orn. Bras., Abth. 1, 1868, 1; Abth. 4, 1870, 391.—Cubas, Cuadro Geogr. Estadístico, Descript. e Hist. de los Estados Unidos Mexicanos, 1884, 177 (common names; Mexico).—Goeldi, Ibis, 1897, 162 (Amapa, ne. Brazil).

Catharista foetens Brabourne and Chubb, Birds South America, i, 1912, 62.—Delacour, Ibis, 1923, 144 (Guárico and Apure, Venezuela; habits).

Coragyps foetens Chubb, Birds Brit. Guiana, i, 1916, 208 (habits).—Coker, Proc. U. S. Nat. Mus., lvi, 1919, 498, in text (Guano Islands, Peru).—Young, Ibis, 1925, 467 (Brit. Guiana; descr., eggs).

Coragyps urubu foetens Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 33 (Paramaribo, Surinam).—Sanzin, El Hornero, i, 1918, 149 (Mendocino, Argentina).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 217 (Ecuador).—Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 91 (Argentina; Paraguay; Chile).—Friedmann, Bull. Mus. Comp. Zool., lxviii, 1927, 155 (Rio de Janeiro, Brazil).—Devincenzi, Anal. Mus. Hist. Nat. Montevideo, ser. 2, iii, 1929, 41 (plum.; range).—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 451 (Piauhy, Brazil); Birds Chile, 1932, 292 (distr., Chile).—Pinto, Rev. Mus. Paulista, xvii, 1932, 30 (se. Brazil).

Catharista urubu foetens Swann, Synopt. List. Accip., pt. 1, 1919, 2 (South America).

Coragyps atratus foetens Lönnberg and Rendahl, Ark. Zool., xiv. No. 25, 1922, 29 (near Río Machangara, 8,800 feet, Ecuador; near Quito, 9,300 feet; Quebrada near Cumbaya, 8,000 feet).—Roberts, Tropical Agr., xi, No. 4, 1934, 5 (Trinidad).—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, xxxvi, 1934, 371 (Matto Grosso, Brazil).—Anonymous, El Hornero, vi, 1935, 182 (distr.).—Pereyra, Mem. Jardin Zool. La Plata, vii, 1937, 215 (La Pampa).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 38, 40, in text (Azuero Peninsula, Panama; spec.; crit.).—Pinto, Rev. Mus.

Paulista, xxii, 1938, 59 (distr.); xxiv, 1940, 228 (Pernambuco; common).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 183 (Venezuela; common).—Barnes and Phelps, Bol. Soc. Venez. Cienc. Nat., No. 46, 1940, 285 (Venezuela; Paraguana Peninsula, El Planchón, Buena Vista).—Lehmann, Rev. Acad. Colomb., iii, 1940, 459 (descr., col. fig.; nest and eggs; distr., Colombia).—Murphey, Auk, lxii, 1945, 116 (Pearl Islands, Panama).—Street, Auk, lxiii, 1946, 370 (Trinidad).

Cathartes aura (not *Vultur aura* Linnaeus) Spix, Av. Bras., i, 1824, 2.—Lesson, Traité d'Orn., 1831, 28.

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Catharista iota Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 3.

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Coragyps brasiliensis Bonaparte, Rev. Mag. Zool., vi, 1854, 530.

Cathartes atratus brasiliensis Schlegel, Mus. Pay-Bas, ii, No. 10, livr. 2, 1863, 3 (monogr.); No. 36, livr. 10, 1873, 139.

Catharista atratus brasiliensis Hellmayr, Abh. K. B. Akad. Wiss., Kl. II, xxii, No. 3, 1905, 567 (crit. as to *Cathartes aura* Spix).—Ihering and Ihering, Av. Brazil, 1907, 81 (Rio Grande do Sul; São Paulo; Rio de Janeiro, Pará; Amazonas).—Berlepsch, Nov. Zool., xv, 1908, 289 (Cayenne).—Bertoni, Fauna Paraguaya, 1913, 41 (upper Rio Paraná).—Marelli, El Hornero, i, 1918, 77 (Curuzí Cuatiá, Argentina).

Catharista atrata brasiliensis Hartert and Venturi, Nov. Zool., xvi, 1909, 237 (Mocovi, Argentina; descr., eggs).—Dabbene, Orn. Argent., 1910, 239 (Río Negro, Patagonia; Córdoba; Tucumán; Oran; Salta; Chaco).

Coragyps atratus brasiliensis Swann, Synop. Accip., pt. 1, 1921, 2 (South America).—Hellmayr, Nov. Zool., xxviii, 1921, 174 (crit.)—Pässler, Journ. für Orn., 1922, 447 (Coronál, Chile; habits; freak color of nude parts).—Giacomelli, El Hornero, iii, 1923, 78 (La Rioja, Argentina).—Serié and Smyth, El Hornero, iii, 1923, 43 (Santa Elena, Argentina).—Snethlage, Journ. für Orn., 1928, 673 (breeding habits, etc., ne. Brazil).—Brodkorb, Pap. Michigan Acad. Sci., Arts and Letters, xxix, 1943, 119, in text (crit., tax.).

Catharista urubu brasiliensis Allen, Bull. Amer. Mus. Nat. Hist., xvi, 1905, 275 (Bonda, Santa Marta, Colombia).—Carriker, Ann. Carnegie Mus., vi, 1910, 442 (Costa Rica; habits).—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 339 (Orinoco Valley, Venezuela).—Smith, Auk, xxxvii, 1920, 601 (Juan Viñas, Costa Rica; habits).

Vultur foetidus Sundevall, Öfv. Svenska Vet.-Akad. Forh., xxxi, 1874, No. 2, 38 (emendation of *foetens*).

Genus CATHARTES Illiger

Cathartes Illiger, Prodromus Orn., 1811, 236. (Type, as designated by Vigors, 1825, *Vultur aura* Linnaeus.)

Gallinaza "Vieillot" Macleay (W. S.), Trans. Linn. Soc. London, xvi, pt. 1, 1829, 15, footnote. (Type, by monotypy, *G. aura* Vieillot= *Vultur aura* Linnaeus.)

Rhinogryphus RIDGWAY, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, Jan. 1874, 337 (in key), 343; Ann. Lyc. Nat. Hist. New York, x, Feb. 1874, 381. (Type, by original designation, *Vultur aura* Linnaeus.)

Oenops SHARPE, Cat. Birds Brit. Mus., i, June 1, 1874, 20, 25. (Type, as designated by Sharpe, ibid., 455, *Vultur aura* Linnaeus.)

Catharista [19] VIEILLOT, Analyse, 1816, 21. (Type, "Vautour urubuaura, Sonnini, édit. de Buffon." Type designated by Gray, 1855, *Vultur aura* Linnaeus.)

Cathartista (emendation) D'ORBIGNY, Voy. Amér. Mérid., iv, 1835, Ois., 31, 38.

Catharthes (emendation) D'ORBIGNY, Voy. Amér. Mérid., iv, 1835, Ois., pl. 1.—LESSON, Rev. Zool., ii, 1839, 132.

Catharistes (emendation) SHARPE, Cat. Birds Brit. Mus., i, 1874, 23.

Medium-sized to rather small lightly built *Cathartes* (wing about 450–585 mm.) nostril very large and broad, occupying entire nasal fossa, both ends rounded; wing relatively long, with longest primaries extending decidedly beyond longest secondaries; tail more than half as long as wing, strongly rounded; middle toe without claw, longer than tarsus; sacral vertebrae 13; cervical ribs 2 pairs; sacral ribs 2 pairs; the adults with bill white, naked skin of head and upper neck red, orange, or yellow and feet whitish (in life).

Bill relatively small, the distance from base of culmen to tip of maxilla equal to about half the distance from same point to middle of eye, but much greater than distance from base of culmen to posterior end of nostril; commissure long, the rictus situated nearly as far back as anterior angle of eye; cere contracted and more or less depressed anteriorly, more or less elevated and arched posteriorly, its length on top much greater than distance from posterior angle of eye to posterior line of occiput, and about three times the depth of maxilla at anterior end of nostril, the depth of mandible at same point very much less than that of maxilla, its anterior outline inclining downward and backward from base of culmen sometimes nearly in a straight line, sometimes as a curved line (concave anteriorly); nostril very large and broad, occupying entire nasal fossa, both ends broadly rounded, and almost completely pervious, its greatest width equal to nearly if not quite half its length. Head (except, sometimes, median lower portion of occiput, sometimes upper neck, at least in front) bare, the skin mostly smooth or merely wrinkled but, in fully adult birds with wartlike excrescences on lores or forehead (or on both) and more or less interspersed with short, hairlike bristles, especially in front of eye, where the antrorse bristles usually form a semicircular patch. Wing large and broad, through great development of remiges, the longest primaries extending considerably beyond tips of longest secondaries, the third or fourth (from outside) longest, the outer five with inner webs sinuated. Tail more than half as long as wing, strongly rounded, the rectrices (12) broad, with rounded tips. Tarsus

[19] Καθάρίζω, purifico (Vieillot).

less than one-ninth as long as wing, shorter than middle toe without claw, covered with very small roundish scales; middle toe without claw, less than twice as long as lateral toes, the latter nearly equal.

Plumage and coloration.—Plumage commencing about middle of neck, where forming a nearly even line all around, or on upper neck and extending upward on nape nearly if not quite to occiput, the feathers broad and imbricated; plumage in general rather soft, the larger wing coverts, remiges, and rectrices more firm. General color black or brownish black, uniform on neck and underparts (sometimes on upperparts also), the wing coverts, scapulars, etc., sometimes grayish brown, black or bluish black (more or less glossy) centrally, the secondaries and rectrices edged with grayish brown; adults with

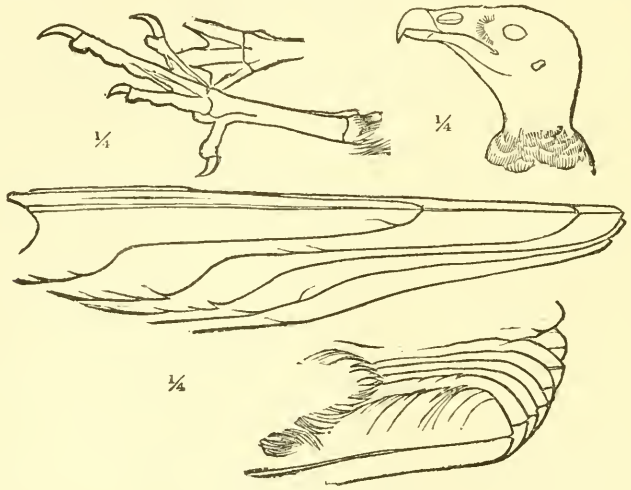

FIGURE 3.—*Cathartes aura.*

bill white and bare skin of head and neck red, orange, or yellow; young with bill and bare skin of head and upper neck blackish or dusky.

Nidification.—Same as in *Coragyps*; eggs similar in coloration.

Range.—Temperate and Tropical America in general, but absent from the West Indies except Cuba, Isle of Pines, and Jamaica, and the Galápagos Archipelago. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF CATHARTES.

a. Head in life mainly yellow; general coloration more uniform, blacker, sheen of feathers of dorsal surface with green predominating; purple restricted or nearly absent; wing coverts black without distinct paler edgings.

C. urubutinga (extralimital) [20]

[20] **Cathartes urubutinga.**—*Cathartes Urubutinga* Pelzeln, Sitzb. Akad. Wiss. Wien, xliv, 1861, 7 (Sapitiba, Irisanga, and Forte do Rio Branco, São Joaquin, Brazil).—*Catharista urubutinga* Pelzeln, Sitzb. Akad. Wiss. Wien, xliv, 1861.

aa. Head in life mainly red; general coloration less dark, more variegated, with brownish edgings to feathers, sheen of feathers of dorsal surface with purple predominating, green restricted or nearly absent, wing coverts distinctly margined with brownish, this color often extensive.

C. aura and races

b. Size larger, wings over 530 mm.

c. Upper wing coverts with distinct brownish edges; plumage fuscous black or brownish black ((eastern United States).

C. a. septentrionalis (p. 38)

cc. Upper wing coverts with little or restricted brownish marginal color; plumage black, not brownish black.....**C. a. jota** [21] (extralimital)

bb. Size smaller, wings under 530 mm.

c. Upper wing coverts, especially the median ones, and the secondaries, with grayish margins.....**C. a. falklandica** [22] (extralimital)

cc. Upper wing coverts and secondaries with no grayish margins.

d. Plumage fuscous black; the upper wing coverts with distinct brownish edges.

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7 (ex. Natterer MS.).—*Oenops urubitinga* Sharpe, Cat. Birds Brit. Mus., i, 1874, 26, pl. 2, fig. 2.—*Oenops pernigra* Sharpe, Cat. Birds Brit. Mus., i, 1874, 26 (n. side Amazon River).—*Rhinogryphus perniger* Sharpe, Cat. Birds Brit. Mus., i, 1874, 455; Gurney, List Diurn. Birds Prey, 1884, 4.—*Rhinogryphus urubitinga* Sharpe, Cat. Birds Brit. Mus., i, 1874, 455.—*Cathartes perniger* Sharpe, Handlist, i, 1899, 240.—*Cathartes ruficollis* Chubb, Birds Brit. Guina, i, 1916, 211, part (Brit. Guiana); Swann, Synop. Accip., pt. 1, 1921, 4.—*Cathartes aura* (not *Vultur aura* Linnaeus) Maximilian, Beitr. Natur. Bras., iii, 1830, 64; d'Orbigny, Voy. Amér. Mérid., Ois., 1835, 38, pl. 1, figs. 3, 4; Tschudi, Fauna Peruana, Aves, 1845, 71; Burmeister, Th. Bras., ii, 1855, 30; Journ. für Orn., 1860, 241 (La Plata); Pelzeln, Orn. Bras., 1868, 1; Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Para), 988; Nom. Av. Neotr. 1873, 123 (part); (?) Allen, Bull. Essex Inst., viii, 1876, 82 (Marajo, lower Amazon).—*Cathartes jota* (nec *Vultur iota* Molina) Cassin, Orn. U. S. Expl. Exped., 1858, 83, pl. 1.—*Cathartes urubitinga* (nec Pelzeln) Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589; Swann, Monogr. Birds Prey, pt. 1, 1924, 17 (monogr.); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 86 (syn., habits).—*Rhinogryphus urubitinga* Gurney, Ibis, 1875, 94 (colors of head in life).—*Cathartes pernigra* Ridgway, Bull. Nuttall Orn. Club, v, 1880, 84 (crit.); Man. North Amer. Birds, 1887, 221; Brabourne and Chubb, Birds South Amer., i, 1913, 62.

[21] **Cathartes aura jota.**—*Vulture Jota* Molina, Saggio Stor. Nat. Chili, 1782, 265 (Chile; restricted to Concepción by Swann, Synop. Accip. ed. 2, 1922, 4).—*Cathartes aura meridionalis* Swann, Synop. Accip., ed. 2, 1922, 3 (Colombia).—*Cathartes occipitalis* Stolzmann, Ann. Zool. Mus. Polon. Hist. Nat., iv, 1925, 319 (Huambo, 3,700 feet, ne. Peru).—*Cathartes jota* Bonaparte, Consp. Gen. Av., i, 1850, 9, part; Rev. Mag. Zool., vi, 1854, 530; Cassin, Rep. U. S. Naval Astron. Exped. (Gilliss), ii, 1855, 172 (Chile; cirt.).—*Cathartes aura* (not *Vultur aura* Linnaeus) d'Orbigny and Lafresnaye, Synop. Avium, 1837, 2, part; Tschudi, *in* Wiegmann's Archiv für Naturg., x, pt. 1, 1844, 262 (Peru).—*Cathartes aura jota* Swann, Monogr. Birds Prey, i, 1924, 12 (monogr.); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 91 (syst.); Peters, Check list Birds of World, i, 1931, 191 (distr.); Reynolds, Ibis, 1931, 26 (Woodcock Island, Beagle Channel).

[22] **Cathartes aura falklandica.**—*Catharista falklandica* Sharpe, Ann. Mag. Nat. Hist., ser. 4, xi, 1873, 133 (Falkland Islands, type from Berkeley Sound).—

e. Tail usually over 250 mm. in length (w. United States).
C. a. teter (p. 45)

ee. Tail usually under 250 mm. in length (tropical Florida and Texas to Colombia)----------**C. a. aura** (p. 34)

dd. Plumage black; the upper wing coverts with little or restricted brown marginal color----------**C. a. ruficollis** [23] (extralimlati)

CATHARTES AURA AURA (Linnaeus)

CENTRAL AMERICAN TURKEY VULTURE

Adults (sexes alike).—Body, wings, and tail generally blackish with steel bluish or greenish blue iridescence on the feathers of the upperparts, breast, and upper wing coverts; with a dull purplish black iridescence on the remiges and rectrices; feathers of the abdomen and the under tail coverts with little or no sheen and less blackish, more a mixture of fuscous-black and chaetura black; the scapulars and upper wing coverts broadly margined with Verona brown, the edges sometimes paling into a snuff brown or darkening into bister; the sheen on

Cathartes aura (not *Vultur aura* Linnaeus), d'Orbigny and Lafresnaye, Synop. Avium, 1837, 2, part; Gould, Proc. Zool. Soc. London, 1859, 93 (Falkland Islands); Sclater, Proc. Zool. Soc. London, 1860, 383 (Falkland Islands); Sclater and Salvin, Ibis, 1869, 284 (Straits Magellan); Proc. Zool. Soc. London, 1878, 434 (Falkland Islands; crit.); Voy. *Challenger*, ii, pt. 8, 1881, 105 (Falkland Islands, crit.; nomen.); Dabbene, Orn. Argent., 1910, 239, part (Patagonia; Tierra del Fuego).—*Rhinogryphus aura* Sharpe, Proc. Zool. Soc. London, 1811, 9 (Tom Bay, Straits Magellan; crit.).—*Catharista falklandica* Sharpe, Ann. Mag. Nat. Hist., ser. 4, xi, 1873, 133 (Berkeley Sound, Falkland Islands).—*Oenops falklandica* Sharpe, Cat. Birds Brit. Mus., i, 1874, 27, pl. 2, fig. 1 (Berkeley Sound, Falkland Islands).—*Cathartes falklandicas* Dabbene, Orn. Argent., 1910, 239 (Patagonia; Malvinas); Stone, Rep. Princeton Univ. Exped. Patagonia, ii, pt. 4, 1915, 551 (syn.; descr.; habits).—*Cathartes aura jota* Swann, Synop. Accip., pt. 1, 1921, 4 (Falkland Islands, Straits Magellan and Patagonia, north to Concepción).—*Cathartes aura falklandica* Dabbene, Orn. Argent., 1910, 413; Swann, Synop. Accip., pt. 3, 1922, Addendum to pp. 3–4 (on coast to Chincha Island, Peru); Monogr. Birds Prey, i, 1924, 13 (monogr.); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 90 (syst.); Peters, Check-list Birds of World, i, 1931, 191 (distr.).

[23] **Cathartes aura ruficollis.**—*Cathartes ruficollis* Spix, Av. Bras., i, 1824, 2 (interior of Bahia and Piauhy).—*Cathartes aura* (not *Vultur aura* Linnaeus) Lichtenstein, Verz. Säug. und Vögel Mus. Berlin, 1818, 30 (Brazil); d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 38, part (habits); Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Pará, Brazil); Pelzeln, Orn. Bras., Abth. i, 1868, 1; Berlepsch, Journ. für Orn., 1873, 292 (Santa Catarina, Brazil; crit.; range).—*Oenops pernigra* Sharpe, Cat. Birds Brit. Mus., i, 1874, 26 (Guiana, Amazonia, and Peru).—*Oenops aura* Heine and Reichenow, Nom. Mus. Heine. Orn., 1890, 274; Hagmann, Zool. Jahrb., 1907, 18 (Mexiana Island, Brazil); Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 88 (Joazsiro, ne. Brazil).—*Cathartes aura ruficollis* Swann, Synopsis Accipitres, pt. 3, 1922, addendum to pp. 3–4 (e. South Amer.; Venezuela and Guiana to Brazil and Paraguay); Monogr. Birds Prey, i, 1924, 16 (monogr); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 88 (crit.; habits); Peters, Check-list Birds of World, i, 1931, 191 (distr.).—*Cathartes iota* (not *Vultur iota* Molina) Bonyan, Proc. Zool. Soc. London, 1851, 53 (Brit. Guiana; habits).

the inner secondary remiges largely but not wholly confined to the outer webs; the inner webs dusky Prout's brown; shafts of the primaries yellowish white below, pale buckthorn brown above; head, chin, throat, and nape bare; the naked skin, somewhat corrugated and sparsely sprinkled with hairlike shafts, dull purplish red with whitish papillae before the eyes and, to a lesser extent, on the crown; cere deeper, lake red; bill chalk-white; iris grayish brown or umber; legs and feet dirty whitish more or less tinged with flesh color (sometimes practically solid flesh color) and yellowish.

Young in juvenal plumage.—Similar to adults but with the brownish edges of the feathers of the back, breast, wings, and tail narrower and darker, dusky mummy brown; the skin of the head and neck blackish-dusky neutral gray to slate black and with considerable down of a grayish Prout's brown color on the crown and hind neck.

Natal down.—Head largely bare, dusky slate-gray to slate-black, crown and occiput sparsely covered with white down; body covered with long white down above and below.

Adult male.—Wing 458–497 (481.3); tail 225–255 (245.6); culmen from cere 22–24 (22.9); tarsus 59.5–65 (62.8); middle toe without claw 59–67 (62.1 mm.) (7 specimens).

Adult female.—Wing 462–495 (482.0); tail 230–256 (240.1); culmen from cere 21.5–25 (23.5); tarsus 58–67 (62.1); middle toe without claw 57.5–67 (62.8 mm.) (8 specimens).

Range.—The lower Rio Grande Valley of Texas (Brownsville) south through Tamaulipas to lower tropical portions of Mexico from Veracruz; central Sonora; Sinaloa; Tres Marías Islands; Quintana Roo, Yucatán, south through Central America to Panama (Farfan; Canal Zone; Barro Colorado) and to northern Colombia (Río Frío; Magdalena; Mamatoco, Santa Marta); also in extreme southern Florida (Cape Sable), the Bahamas (Abaco, Andros, Great Bahama, Little Abaco, Elbow Cay, and New Providence (?)), Cuba, Isle of Pines, Jamaica, Puerto Rico (introduced); possibly formerly in Hispaniola.[24]

Type locality.—"America calidiore"=Veracruz, Mexico, substituted by Nelson (Proc. Biol. Soc. Washington, xviii, 1905, 124).

Vultur aura Linnaeus, Syst. Nat., ed. 10, i, 1758, 86 (America calidiore; based on *Tzopilotta f. Aura* Hernández,[25] Mex., 331; *Urubu brasiliensibus* Maregrave, Bras., 207[26]; Willughby, Orn., 68; Ray, Av., 10, 180, *Buteo specie gallopavonis* Catesby, Carolina, i, p. 6, t. 6[27]; *Vultur gallinæ africanæ facie* Sloan,[25] Jam., 2, p. 294, fig. 254; *Vultur pullus, capite implumi, cute crasso rugosa, ultra apertus*

[24] Cf. Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 108, footnote.

[25] =the present form.

[26] =*C. urubitinga* Pelzeln.

[27] =*C. aura septentrionalis.*

nasales laxata Brown,[28] Jam., 471); ed. 12, i, 1766, 122 (cites, in addition, *Vultur brasiliensis* Brisson [26]).—Boddaert, Tabl. Planches Enl., 1783, 11 (Pl. Enl., pl. 187).—Gmelin, Syst. Nat., i, pt. 1, 1788, 246.—Latham, Index Orn., i, 1790, 4.—Daudin, Traité d'Orn., ii, 1800, 19.—Turton, Syst. Nat., i, 1806, 139.—Shaw, Gen. Zool., vii, pt. 1, 1809, 36 (crit.).—Cabanis, Journ. für Orn., 1854, p. lxxix (Cuba).

Catharista aura Vieillot, Nouv. Dict. Hist. Nat., xii, 1817, 400, part.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 3, part (Jamaica).—Gray, Hand-list, i, 1869, 3, No. 18, part (West Indies).

Percnopterus aura Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 7.

Cathartes aura d'Orbigny, *in* La Sagra's Hist. Nat. Cuba, Ois., 1839, Spanish ed., 23, French ed., 4.—Denny, Proc. Zool. Soc. London, 1847, 37.—Gosse, Birds Jamaica, 1847, 1.—Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).—Bonaparte, Rev. Mag. Zool., vi, 1854, 530.—Sclater, Proc. Zool. Soc. London, 1857, 211 (Orizaba, Veracruz); Rev. List Birds Jamaica, 1910, 13.—Bryant, Proc. Boston Soc. Nat. Hist., vii, 1859, 104 (Bahamas).—Sclater and Salvin, Ibis, 1859, 213 (Duenas, Guatemala; habits); Nom. Av. Neotr., 1873, 123, part.—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Taylor, Ibis, 1860, 222 (Honduras).—Albrecht, Journ. für Orn., 1861, 50 (Bahamas); 1862, 203 (Jamaica).—Gundlach, Journ. für Orn., 1861, 401 (Cuba; crit.); Rep. Físico Nat. Cuba, i, 1865, 221; Journ. für Orn., 1871, 267 (Cuba; crit.), 353 (Cuba; habits); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 97; Contr. Orn. Cubana, "1876" (=1873), 29; Orn. Cubana, 1895, 7.—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1863, 2 (Panama); Mem. Boston Soc. Nat. Hist., ii, 1874, 303 (Mazatlán, Sinaloa; Tres Marías Islands; Colima; habits).—Lichtenstein, Journ. für Orn., 1863, 58.—March, Proc. Acad. Nat. Sci. Philadelphia, xv, 1863, 150 (Jamaica).—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 42, part (Cuba; Jamaica).—Frantzius, Journ. für Orn., 1869, 370 (Costa Rica).—Grayson, Proc. Boston Soc. Nat. Hist., xiv, 1872, 267 (Tres Marias Islands; habits).—Cory, Birds Bahama Islands, 1880, 134 (Abaco; Andros; Great Bahama); List Birds West Indies, 1885; rev. ed., 1886, 23 (Bahamas; Cuba; Jamaica); Auk, iv, 1887, 50 (West Indian references); Birds West Indies, 1889, 208 (West Indian references); Auk, viii, 1891, 294 (Cuba), 298 (Abaco Island); Cat. West Indian Birds, 1892, 48 (Abaco and Andros Islands, Bahamas; Cuba; Isle of Pines; Jamaica).—Newton and Newton, Handb. Jamaica, 1880, 134.—Rovirosa, La Naturaleza, vii, 1887, 379 (Tabasco; Río Macuspana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 127 (Costa Rica).—Salvin, Ibis, 1889, 375 (Cozumel Island, Yucatán; Ruatan and Bonaca Islands, Honduras).—Scott, Auk, ix, 1892, 125 (Jamaica).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7–8, 1894, 222 (Mexico; distr.).—Underwood, Ibis, 1896, 447 (Volcán de Miravalles, Costa Rica).—Bonhote, Ibis, 1903, 298 (Andros and Little Abaco Islands, Bahamas; not found on New Providence Island).—Cory, Publ. Field Mus. Nat. Hist., orn. ser., i, No. 5, 1909, p. 241, 253 (Leeward Islands: Margarita; common).—Reichenow, Die Vögel, i, 1913, 361.—Hallinan, Auk, xli, 1924, 311 (Farfan, Panama).—Bond, Birds West Indies, 1936, 59, 60 (West Indies; descr.; distr.; local names; crit.).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 25 (nc. Mexico; common); Auk, lvii, 1940, 237, in text

[26] =*C. urubitinga* Pelzeln.

[28] =a mixture of the present form and *Coragyps atratus atratus*.

(Veracruz: Las Vigas; occasionally); Ann. Carnegie Mus. xxviii, 1941, 170 (Mexico, Hidalgo, seen everywhere).—Sutton and Pettingill, Auk lix, 1942, 8 (Gomez Farias, sw. Tamaulipas).—Van Tyne and Trautman, Wils. Bull., lvii, 1945, 203 (Yucatán; Chichen Itzá, migration, between Feb. 2, 1936 and March 25, 1936).—Wetmore, Smiths. Misc. Coll., cvi, No. 1, 1946, 23 (Pearl Islands, Panama).—Miller, Auk, lxiv, 1947, 354 (Upper Magdalena Valley, Colombia; common—breeding).

Rhinogryphus aura Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 344, part.—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 44 (ubiquitous, sw. Mexico).—Sharpe, Linn. Soc. Journ. Zool., xiii, 1876, 21, map 6, part (geogr. range).—Gurney, List Diurn. Birds Prey, 1884, 4, part; Cat. Birds Prey, 1894, 17, part.

Oenops aura Sharpe, Cat. Birds Brit. Mus., i, 1874, 25, part (Jamaica; Mexico).—Boucard, Proc. Zool. Soc. London, 1878, 45 (Costa Rica).

Cathartes aura aura Bangs and Zappey, Amer. Nat., xxxix, 1905, 190 (Isle of Pines, Cuba; crit.).—American Ornithologists' Union, Check-list, ed. 3, 1910, 152; Auk, lxiii, 1946, 429 (s. Florida and Texas).—Carriker, Ann. Carnegie Mus., vi, 1910, 443 (Costa Rica).—Worthington, Ann. Carnegie Mus., vii, 1911, 451 (Andros and Abaco Islands, Bahamas).—Todd, Ann. Carnegie Mus., x, 1916, 191 (Isle of Pines; crit. habits).—Wetmore, U. S. Dept. Agr. Bull. 326, 1916, 30 (Puerto Rico; introduced?); U. S. Nat. Mus. Bull. 133, 1926, 87 (crit. syst.); New York Acad. Sci., ix, pt. 3, 1927, 318 (genl.; Puerto Rico); Condor, xxxvii, 1935, 176, in text (Comstock, Tex.; prehist. bone; skel.; meas.); Smiths. Misc. Coll., cvi, No. 1, 1946, 24, in text (Pearl Islands, Panama).—Stone, Proc. Acad. Nat. Sci., Philadelphia, 1918, 248 (Canal Zone; listed); lxxxiv, 1932, 299 (Honduras; Cantarranas Omoa; Ruatan Island).—Bangs and Kennard, List Birds Jamaica, 1920, 45 (common resident).—Swann, Synop. Accip., pt. 1, 1921, 3, part (Mexico, Guatemala; Bahamas; Cuba; Jamaica); pt. 3, 1922, addendum to pp. 3–4 (e. Mexico; Guatemala; Cozumel Island; Cuba; Jamaica; Bahamas); Monogr. Birds Prey, i, 1924, 11 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 141 (Mamatoco, Santa Marta, Colombia; crit.).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 43 (Cuba); No. 9, 1943, 31 (Cuba; abund.).—Struthers, Auk, xl, 1923, 471 (Puerto Rico: Guanica Valley; Anaisco; Cartegena Lagoon).—Danforth, Wils. Bull., xl, 1928, 180 (near Santiago de Cuba, Cuba); Auk, xlv, 1928, 482 (summer; Jamaica); Journ. Dept. Agr. Puerto Rico, xv, 1931, 46 (Coamo Springs; Ponce; Tallaboa; Penuelas; Lajas; Parguera, Puerto Rico); Journ. Agr. Univ. Puerto Rico, xix, 1935, 425 (Cuba, abundant), 435 (Puerto Rico; introduced; restricted to sw. part of island).—Sturgis, Field Book, Birds Panama Canal Zone, 1928, 122 (descr., habits, Panama).—Austin, Bull. Mus. Comp. Zool., lxix, 1929, 372 (distr. Cayo distr. Brit. Honduras).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 415 (Tela, Honduras); Check-list Birds of World, i, 1931, 190 (distr.).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 364 (Río Frío, Magdalena, Colombia).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 148 (distr., Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 297 (Panama; common).—Heath, Ibis, 1932, 482 (Barro Colorado, Panama).—Friedmann, Proc. Biol. Soc. Washington, xlvi, 1933, 188 (distr.).—Rutten, Ardea, xxiii, 1934, 115 (Cuba).—van Tyne, Univ. Michigan Mus. Zool. Misc. Publ. 27, 1935, 16 (common at Uaxactan, Peten, Guatemala).—Bond, Birds West Indies, 1936, 60, 61, in text (West Indies; descr.; distr.), 413; Check List Birds West Indies, 1940, 20 (West Indies; distr.); ed. 2, 1945, 20 (West Indies; common).—Brandt, Auk, liii, 1936, 325 (Brownsville, Tex.).—Aldrich, Sci. Publ.

Cleveland Mus. Nat. Hist., 7, 1937, 41, in text (crit.).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 16 (Brewster County, Tex.; sev. records; not known here until recently; meas.; crit.; habits).—Burleigh, Auk, lv, 1938, 520, 521, in text (Florida; spec.).—Sassi, Temminckia, iii, 1938, 297 (Costa Rica, Castilla on lower Río Reventazon, and Bebedero; specimens).—Davis, Wils. Bull., liii, 1941, 38 (Cienfuegos, Cuba; young; nest).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Yucatán).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 525 (Michoacan; Apatzingan and Cerro de Tancitaro; spec.; meas.).—Brodkorb, Misc. Publ. Mus. Zool Univ. Michigan, No. 56, 1943, 26 (Tabasco, Mexico).—van Rossem, Condor, xlviii, 1946, 180, in text (ranges northward at least to 28° in Sonora; colors of soft parts).

Cathartes aura subsp. Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (e. Quintana Roo, Yucatán).—Murphy, Auk, lxii, 1945, 116 (Pearl Islands, Panama).

(?) *Aquila nudicollis* Ritter, Naturh. Reis. Westind. Insel Hayti, 1836, 155 (Haiti).—Tippenhauer, Die Insel Haiti, 1892, 319 (listed;? Haiti).

(?) *Falco nudicollis* Hartlaub, Isis, 1847, 610 (listed after Ritter; Haiti).

Cathartes burrovianus Cassin, Proc. Acad. Nat. Sci. Philadelphia, ii, 1845, 212 (Veracruz, Mexico; coll. Acad. Nat. Sci. Philadelphia); iv, 1849, 160 (crit.); Cat. Vult. Mus. Philadelphia Acad., 1849, 5; Rep. U. S. Expl. Exped. (Wilkes), Orn., 1858, 84; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 6.—Sclater, Proc. Zool. Soc. London, 1857, 3 (crit.).—Baird, Cat. North Amer. Birds, 1859, No. 4.—Dresser, Ibis, 1865, 322 (Brownsville, Tex.).—Elliot, New and Unfig. North Amer. Birds, ii, pt. 1, 1866, pl. 36, and text.—Coues, Key North Amer. Birds, 1872, 222 (range, descr.); Birds Northwest, 1874, 383, footnote.—Ridgway, Bull. Nuttall Orn. Club, v, 1880, 83 (crit.); Proc. U. S. Nat. Mus., viii, 1885, 34 [=38], part (crit.; syn., etc.); Man. North Amer. Birds, 1887, 221, part (e. Mexico; s. Texas?).—American Ornithologists' Union, Check-list, 1886, 353 (hypothetical list, No. 13); ed. 2, 1895, 329.—Sharpe, Hand-list, i, 1899, 241, part (e. Mexico).

Catharista burroviana Gray, Hand-list, i, 1869, 3, No. 19.—Sharpe, Ann. Mag. Nat. Hist., ser. 4, xi, 1873, 133 (Jamaica).

Rhinogryphus burrovianus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 344.—Gurney, List Diurn. Birds Prey, 1884, 4, part; Cat. Birds Prey, 1894, 17, part.

Oenops burroviana Sharpe, Cat. Birds Brit. Mus., i, 1874, 28 footnote (crit.).

Cathartes atratus (not *Vultur atratus* Ord *ex* Bartram) Nicoll, Ibis, 1904, 577 (Kingston, Jamaica, abundant; see Nicoll, Ibis, 1905, 138).

Cathartes aura insularis Swann, Synop. Accip., pt. 1, 1921, 3 (Cozumel Island, Yucatán; coll. Brit. Mus.).

Cathartes aura meridionalis Swann, Synop. Accip., pt. 1, 1921, 3 ("Colombia," type from Santa Marta).

CATHARTES AURA SEPTENTRIONALIS Wied

Eastern Turkey Vulture

Similar to *C. aura aura* but larger in all dimensions.

Adult male.—Wing 518–550 (535.9); tail 252–298 (271); culmen from cere 24–25 (24.4); tarsus 65–71 (68.1); middle toe without claw 60–71 (64.4 mm.) (14 specimens).

Adult female.—Wing 527–559 (545.8); tail 272–294 (283.6); culmen

from cere 24–26 (25); tarsus 70–75 (72.8); middle toe without claw 63.5–70 (66.1 mm.) (10 specimens).

Range.—Southern Ontario, central New York, Connecticut, southwestern Massachusetts, New Jersey, Ohio, Indiana, Illinois, and central and eastern Iowa, south through Missouri and Arkansas to Louisiana, the Gulf States, and southern Florida (at least to Miami and Cedar Keys; no specimens seen from the extreme tip of the peninsula or from the keys). Breeds north to Michigan, southeastern New York, and Connecticut; winters throughout its range except north of the Ohio Valley; casual in northern Ontario, Quebec, New Hampshire, Maine, New Brunswick, Nova Scotia, Newfoundland, and Newfoundland Labrador.

Type locality.—Near New Harmony, Ind.

Vultur aura LINNAEUS, Syst. Nat., ed. 10, i, 1758, 86, part (citation of Catesby, Carolina, i, p. 6, pl. 6); ed. 12, i, 1766, 122, part.—GMELIN, Syst. Nat., i, pt. 1, 1788, 246, part.—LATHAM, Index Orn., i, 1790, 4, part.—MEASE, Geol. Account United States, 1807, 347, in text (South Carolina; Georgia).—VIEILLOT, Ois. Amer. Sept., i, 1807, 25, pl. 2 *bis* part.—WILSON, Amer. Orn., ix, 1814, 96, pl. 75, fig. 1, part.—BONAPARTE, Ann. Lyc. Nat. Hist. New York, iii, 1824, 842, part (crit.).—AUDUBON, Edinburgh Journ. Sci., vi, 1827, 156 in text, part (compared with *Coragyps*).

Cathartes aura BONAPARTE, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 342, part; Obs. Wilson's Amer. Orn., 1826, [2] part; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 23; Contr. Maclurian Lyc., i, 1827, 10, part; Geogr. and Comp. List, 1838, 1; Consp. Gen. Av., i, 1850, 9; Rev. Mag. Zool., vi, 1854, 530, part.—SWAINSON and RICHARDSON, Fauna Bor.-Amer., ii, 1831, 4, part.—NUTTALL, Man. Orn. United States and Canada, Land Birds, 1832, 43; ed. 2, 1840, 44, part.—AUDUBON, Orn. Biogr., ii, 1834, 296, pl. 151; v, 1839, 339, part; Synopsis, 1839, 2, part; Birds Amer., 8vo ed., i, 1840, 15, pl. 2, part.—GIRAUD, Birds Long Island, 1844, 1 (Long Island, N. Y., rare).—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, iv, 1849, 159, part (crit.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 4, part.—HOY, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 304 (Wisconsin).—BARRY, Proc. Boston Soc. Nat. Hist., v, 1854, 1 (Wisconsin; rare).—MAXIMILIAN, Journ. für Orn., 1856, 119, part (history, descr., etc.).—BREWER, North Amer. Ool., i, 1857, 1, pl. 1, fig. 1, 2, part.—BAIRD, Cat. North Amer. Birds, 1859, No. 1, part.—MARTENS, Journ. für Orn., 1859, 212 (Bermuda).—BOARDMAN, Proc. Boston Soc. Nat. Hist., ix, 1862, 122 (Calais, Maine).—TAYLOR, Ibis, 1862, 129 (Florida).—VERRILL, Proc. Essex Inst., iii, 1862, 156 (Oxford County, Maine).—SCHLEGEL, Mus. Pays-Bas, ii, No. 10, livr. 2, 1863, 3, part (monogr.); No. 36, livr. 10, 1873, 139, part.—GURNEY, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 42, part (Florida).—LAWRENCE, Ann. Lyc. Nat. Hist. New York, viii, 1866, 279 (Flushing and Rockaway, Long Island).—McILWRAITH, Proc. Essex Inst., v, 1868, 80 (Hamilton, Ontario).—COUES Key North Amer. Birds, 1872, 222, part; Check List North Amer. Birds, 1873, No. 365, part; Birds Northwest, 1874, 379, in part; Check List North Amer. Birds, ed. 2, 1882, No. 537, part; Key North Amer. Birds, ed. 2, 1884, 559, part.—BOIES, Cat. Birds Southern Michigan, 1875, No. 142 (s. Michigan; trans.).—BREWSTER, Ann. Lyc. Nat. Hist. New York, xi, 1875, 145 (Ritchie County, W. Va.); Auk, xxiii, 1906, 221 (Aquaforte, Newfoundland, Nov.

1905); Mem. Nuttall Orn. Club, No. 4, 1906, 181 (Cambridge region, Mass.; casual vis.; records).—Merriam, Birds Connecticut, 1877, 87 (rare vis.).—Gibbs, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 3, 1879, 491 (Michigan now rare).—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 195, part; Nom. North Amer. Birds, 1881, No. 454, part; Man. North Amer. Birds, 1887, 221, part; Orn. Illinois, i, 1889, 490.—Cory, Bull. Nuttall Orn. Club, vii, 1882, 184 (near Hampton Falls, N. H., Apr. 6 or 7, 1882).—Wheaton, Rep. Birds Ohio, 1882, 437, 440, 579, 587 (Ohio; syn.; descr.; summer res.; hist.).—Fraser, Auk. i, 1884, 293 (near Brockport, w. New York, May 23, 1884).—Reid, U. S. Nat. Mus. Bull. 25, 1884, 224 (Bermuda, 1 spec., 1853).—Bagg, Auk, ii, 1885, 109 (Oneida County, N. Y., May 1879); xiv, 1897, 227 (Oneida County, Aug. 1896).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 325, part; ed. 3, 1910, 152, part.—Dutcher, Auk, iii, 1886, 439 (near Greenport, Long Island, 1 spec., Aug. 15, 1885); v, 1888, 179 (sw. Long Island; sev.).—Ralph and Bagg, Trans. Oneida Hist. Soc., iii, 1886, 117 (Westmoreland, Oneida County, May 1879).—Barrows, Auk, iv, 1887, 172 [=174] (on sense of smell).—Cox, Auk, iv, 1887, 208 (Nequac, New Brunswick, 1 spec., Jan. 1884; Black Brook, New Brunswick, Sept. 1886).—Sayles, Auk, iv, 1887, 51 [=56] (on sense of smell).—Hopkins, Auk, v, 1888, 248 [=251] (on sense of smell).—Keys and Williams, Proc. Davenport Acad. Nat. Sci., v, 1888, 126 (Iowa).—Roddy, Auk, v, 1888, 245 (feeding of young).—Warren, Birds Pennsylvania, 1888, 72.—Jones, Curlew, i, 1889, 52 (Jasper and Poweshiek Counties, Iowa); Wils. Bull., No. 16, 1897, 60 (Oberlin, Ohio, spring and summer); No. 22, 1898, 62 (Lorain County, Ohio, increasing in numbers); Birds Ohio, rev. cat., 1903, 87 (Ohio; fairly common summer res.).—Mason, Auk, vi, 1889, 70 (West Falmouth, Mass., Sept. 9, 1888).—Bowdish, Auk, viii, 1891, 394 (Ontario County, N. Y., flock of 8, July 3, 1891).—Kelsey, Orn. and Ool., xvi, 1891, 132 (Poweshiek County, Iowa).—Sheldon, Orn. and Ool., xvi, 1891, 129 (Iowa).—Hatch, Geol. and Nat. Hist. Surv. Minnesota, 1892, 175 (Minnesota; Iowa; etc.).—Marshall, Auk, ix, 1892, 203 (Clarendon, Orleans County, N. Y., July 18, 1891).—Miller, Auk, ix, 1892, 397 (North Truro, Mass., June 1892).—Preston, Orn. and Ool., xvii, 1892, 42 (flight; Iowa).—Higgins, Auk, x, 1893, 301 (Chenango County, N. Y., 1 spec., summer 1891).—Stone, Birds Eastern Pennsylvania and New Jersey, 1894, 84.—White, Auk, xi, 1894, 250 (Weston' Mass., Apr. 1893).—Dunn, Auk, xii, 1895, 394 (near Riverside, Cook County, Ill., 2 specs., May 30, 1895).—Kram, Auk, xii, 1895, 80 (Plainfield, N. J., June 30, 1894).—Ulrey and Wallace, Proc. Indiana Acad. Sci., 1895, 151 (Wabash, Ind., abund. summer res.).—Chapman, Auk, xiii, 1896, 341 (Ulster County, N. Y., Sept. 1, 1896).—Gault, Wils. Bull., No. 9, 1896, 3 (Chicago, Ill., 3 specimens, Apr. 1, 1896).—Bartsch, Iowa Orn., iii, 1897, 54 (Winneshiek and Allamakee Counties, Iowa).—Keyes, Iowa Orn., iii, 1897, 1 (Iowa).—Brockway, Auk, xv, 1898, 53 (Old Lyme, Conn., Aug. 31, 1897).—Mackay, Auk, xvi, 1899, 181 (Summerville, Mass., 3 specimens, Sept. 25, 1898).—Posson, Auk, xvi, 1899, 195 (Orleans County, w. New York, May 23, 1884, July 18, 1891).—Rhoads, Auk, xvi, 1899, 310 (w. Pennsylvania, rare straggler n. of Pittsburgh).—Sharpe, Hand-list, i, 1899, 240, part.—Braislin, Auk, xvii, 1900, 70 (Rockaway Beach, Long Island, July 15, 1899); xx, 1903, 53 (Rockaway Beach, June 21, 1902); xxi, 1904, 287 (2 additional Long Island specs.).—Moore, Auk, xvii, 1900, 177 (Victoria County, New Brunswick, Mar. 1898; Keswick, York County, New Brunswick, spring 1898).—Nash, Check List Birds Ontario, 1900, 28 (Ontario; occas.); Check List Vert. Ontario; Birds, 1905, p. 38 (Ontario; occas.).—Allen (G. M.), Proc. Man-

chester Inst. Arts and Sci., iv, 1902, 96 (Hampton Falls, N. H., April 7, 1882, and May 15, 1898; near Concord, N. H., spring 1887).—Dawson, Birds Ohio, 1903, 419, 652, pl. 48 (descr.; range; habits).—Deane, Auk, xxii, 1905, 78 (Scarboro Beach, Maine, Aug. 5, 1904; Maine records).—Morris, Auk, xxii, 1905, 413 (Beeket, w. Massachusetts, June 8, 1905).—Stockard, Auk, xxii, 1905, 151 (breeding habits in Mississippi).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 204 (Essex County, Mass.; occas. vis.; spec.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 241 (Iowa; habits).—Taverner and Swales, Wils. Bull., No. 60, 1907, 91 (Point Pelee, Ontario, 2 specimens, May 20, 1906).—Widmann, Birds Missouri, 1907, 86.—Woodruff, Chicago Acad. Sci. Bull. 6, 1907, 90 (rare in Chicago area).—Gibson, Auk, xxv, 1908, 315 (3 miles nw. of Schenectady, N. Y., June 1899).—Knight, Birds Maine, 1908, 213 (rare straggler).—Leibelsperger, Auk, xxv, 1908, 232 (Berks County, Pa., breeding).—Taverner, Auk, xxv, 1908, 328 (Point Pelee, Ontario); Birds Canada, 1934, 115 (Canada; genl.); Can. Water Birds, 1939, 128 (field characters; Canada).—Johnston, Birds West Virginia, 1923, 88 (West Virginia).—Pickens, Auk, xliv, 1927, 573 (nesting; Anderson County, S. C.).—Schüz, Journ. für Orn., lxxv, 1927, 98, 142, in text (powder downs).—Woods, Auk, xlvi, 1929, 386, in text (field characters).—Guthrie, Wils. Bull., xliv, 1932, 102, in text (eats snakes).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 19 (Ontario; breed. rec.).—Lincoln, Bird-Banding, vii, 1936, 39 (e. United States).—Shortt and Waller, Contr. Roy. Ontario Mus. Zool., No. 10, 1937, 15 (Lake St. Martin region, Manitoba; spec. sighted).—Snyder, Trans. Royal Can. Inst., xxii, 1938, 183 (w. Rainy River distr., Ontario; unmistakable ident. from live spec.).—Engels, Auk, lviii, 1941, 63, 65, in text and diagram (wing skeletal ratios).—Stewart Auk, lx, 1943, 390 (Shenandoah Mountains; breeds).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 357 (Gulf coast of Mississippi; not common).—Lowery, Auk, lxiii, 1946, 201 (trans-Gulf migr.).

Catharista aura Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 3, part; Hand-list, i, 1869, 3, No. 18, part.

Rhinogryphus aura Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 344, part; Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 23 (lower Wabash Valley).—Brewer, Proc. Boston Soc. Nat. Hist., xvii, 1875, 445 (accidental; Maine; Connecticut).—Nelson, Bull. Essex Inst., viii, 1876, 120 (ne. Illinois, rare vis.); ix, 1877, 42 (s. Illinois; very common), 50 (abund. in Fox Prairie), 58 (Cairo, Ill.; very numerous), 62 (Anna, Union County, not common), 63 (10 miles w. of Anna), 65 (s. Illinois).—Sharpe, Linn. Soc. London Journ. Zool., xiii, 1878, 21, map 6, part (geogr. range).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; common summer res.).—Gurney, List Diurn. Birds Prey, 1884, 4, part; Cat. Birds Prey, 1894, 17, part.

Cathartes aura aura Swann, Synop. Accip., pt. 1, 1921, 3, part.—Oberholser, Auk, xxxix, 1922, 247, part (name for northern form).

Cathartes septentrionalis Wied, *in* Maximilian's Reise Nord-Amerika, i, 1839, 162 (near New Harmony, Ind.); Journ. für Orn., 1856, 119, in text (crit.).

Cathartes aura septentrionalis Nelson, Proc. Biol. Soc. Washington, xviii, Apr. 18, 1905, 125, part (crit.).—Bangs and Zappey, Amer. Nat., xxxix, Apr. 1905, 190, in text, part.—American Ornithologists' Union, Auk, xxv, 1908, 369; Check-list, ed. 3, 1910, 152, part; ed. 4, 1931, 61, part (distr.).—Stone, Birds New Jersey, 1908, 156 (New Jersey; descr.; com-

mon perm. res.; habits); Bird Studies Old Cape May, i, 1937, 253 (New Jersey; status; habits).—Cory, Publ. Field Mus. Nat. Hist. No. 131, 1909, 449, part (Illinois).—Burtch, Auk, xxvii, 1910, 208 (Steuben County, N. Y., July 11, 1909).—Wayne, Birds South Carolina, 1910, 67 (habits).—Norton, Auk, xxviii, 1911, 263 (revision of Maine records).—Barrows, Michigan Bird Life, 1912, 254, part.—Bailey, Birds Virginia, 1913, 97 (Virginia; range; breed; eggs); Birds Florida, 1925, 65, pl. 35 (fig.; distr.; Florida).—Fleming, Auk, xxx, 1913, 227 (Scarboro, Ontario, Nov. 17, 1908; Petersboro, Ontario, Dec. 2, 1895).—Hathaway, Auk, xxx, 1913, 553 (Point Judith, R. I., June 16, 1908, Block Island, Apr. 12, 1912).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 73 (rare vis.).—Chapman, Handb. Birds Eastern North America, 1914, 286 (genl.).—Eaton, Birds New York, ii, 1914, 63, pl. 43 (summer vis. to s. and w. New York).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 46 (monogr.; Iowa).—Harlow, Auk, xxxv, 1918, 23 (s. New Jersey, very common and breeding; Susquehanna Valley, Pa., n. to Dauphin, Perry, Northumberland, and Centre Counties).—Mousley, Auk, xxxv, 1918, 84, 297 (Hatley, Quebec).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 160 (N. C.; descr.; range; habits; eggs).—Burns, Orn. Chester County, Pa., 1919, 50 (Chester County, Pa.; common summer resident; nest and eggs).—Farley, Auk, xxxvi, 1919, 567, in text (Plymouth, Mass., July 25, 1910).—Bishop, Auk, xxxviii, 1921, 585 (West Haven, Conn.).—Deane, Auk, xxxviii, 1921, 601, in text (Michigan).—Holt, Geol. Surv. Alabama, Mus. Pap. No. 4, 1921, 46 (Alabama; common; res.; breeds; food-finding habits); Auk, xliii, 1926, 542, in text (nesting; Beaver County, Pa.).—Howell, Auk, xxxviii, 1921, 255 (Royal Palm Hammock, Fla.; common); Birds Alabama, 1924, 127; ed. 2, 1928, 127 (distr.; habits; Alabama); Florida Bird Life, 1932, 161 (genl.; Florida).—Hunt, Auk, xxxviii, 1921, 377 (Tillar, Ark.; abundant); xl, 1923, 147 (Biloxi, Miss.); xlviii, 1931, 236 (Pulaski County, Ark.).—Corrington, Auk, xxxix, 1922, 543 (Biloxi, Miss.; winter).—Faxon and Hoffman, Auk, xxxix, 1922, 70 (Berkshire County, Mass., June and July 1905).—Hallinan, Auk, xxxix, 1922, 573, in text (Jacksonville, Fla.; roosting on transmission line insulators).—Horsey, Auk, xxxix, 1922, 80 (e. Kentucky).—Porter, Auk, xxxix, 1922, 275, in text (near Stamford, Conn., April 24, 1921).—Swann, Synop. Accip., pt. 3, 1922, addendum to pp. 3–4, part (distr.).—Wilson, Auk, xxxix, 1922, 235 (Bowling Green, Ky.); Wils. Bull., xxxvii, 1925, 44, in text (Bowling Green, Ky.).—Figgins, Auk, xl, 1923, 674 (Louisiana: Cameron Parish; seen).—Griscom, Birds New York City Region, 1923, 179 (status, New York City); Trans. Linn. Soc. New York, iii, 1933, 89 (Dutchess County, N. Y.; reg. vis. along southern border; rare wanderer northward).—(?) Jackson, Auk, xl, 1923, 481 (Mamie Lake, Wis.; seen).—Oberholser, Auk, xl, 1923, 679, part (nomencl.); Bird Life Louisiana, 1938, 148 (Louisiana; common permanent res.; distr.; habits; food; nest; breeds).—Soper, Auk, xl, 1923, 497 (Wellington and Waterloo Counties, Ontario).—Beck, Auk, xli, 1924, 292, in text (Pennsylvania German common names).—Burleigh, Wils. Bull. xxxvi, 1924, 70 (breeding; Centre County, Pa.); xliii, 1931, 39 (breeding; State College, Centre County, Pa.); Auk, lviii, 1941, 337 (North Carolina; Mt. Mitchell; infrequent spring and summer).—Pindar, Wils. Bull., xxxvi, 1924, 204 (status, e. Arkansas); xxxvii, 1925, 85 (Fulton County, Ky.).—Swann, Monogr. Birds Prey, i, 1924, 14, part (monogr.).—Urner, Auk, xli, 1924, 166 (Elizabeth, N. J.); Abstr. Linn. Soc. New York, Nos. 39, 40, 1930, 71 (Union County, N. J.); Auk, xlviii, 1931, 116, in text (pine barrens,

N. J.).—Williams, Auk, xli, 1924, 476 (nesting; eggs; Prince George County, Md.).—Blincoe, Auk, xlii, 1925, 409 (Bardstown, Ky.).—Gardner, Proc. U. S. Nat. Mus., lxvii, art. 19, 1925, 15, in text, pl. 6 (structure of tongue).—Wheeler, Birds Arkansas, 1925, 44, xv, xx (descr.; eggs; habits; distr.).—Fargo, Wils. Bull., xxxviii, 1926, 148 (Pinellas and Pasco Counties, Fla.).—Grasett, Auk, xliii, 1926, 556 (Wheeling, Ill.).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 426 (habits, s. Florida).—Worthington and Todd, Wils. Bull., xxxviii, 1926, 211 (Choctawhatchee Bay, Fla.).—Bent and Copeland, Auk, xliv, 1927, 380 (Florida).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 88, pls. 37 and 38 (figs.; descr.; habits; New England).—Hausman, New Jersey Agr. Exp. Sta. Bull. 439, 1927, 11 (food; econ.; New Jersey).—Bailey, Auk, xlv, 1928, 278 (winter, Chenier au Tigre, La.).—Lewis, Wils. Bull., xl, 1928, 155, in text (sight; sense of smell; food finding).—Pickens, Wils. Bull., xl, 1928, 189 (upper Piedmont Mountains; upper South Carolina).—Shelley, Auk, xlv, 1928, 503, in text (Jaffrey, N. H.).—Sutton, Auk, xlv, 1928, 501, in text (extension of breeding range in Pennsylvania); Birds Pennsylvania, 1928, 56 (Pennsylvania; descr., range, nest).—(?) Brodkorb, Auk, xlvi, 1929, 398 (Berrier County, Mich.).—Cahn and Hyde, Wils. Bull., xli, 1929, 36 (ecol. distr.; Little Egypt, Ill.).—Cooke, Proc. Biol. Soc. Washington, xlii, 1929, 34 (Washington, D. C.).—Harper, Wils. Bull., xli, 1929, 236 (Randolph County, Ga.).—Pangburn, Auk, xlvi, 1929, 385, in text (Chappaqua, N. Y.).—Pennock, Auk, xlvi, 1929, 250, in text (egg; Punta Gorda, Fla.).—Youngworth, Wils. Bull., xli, 1929, 246 (Iowa records).—Baker, Auk, xlvii, 1930, 251, in text (Pound Ridge, N.Y.).—Brooks, Wils. Bull., xlii, 1930, 246 (Cranberry Glades, W. Va.).—Eldredge, Auk, xlvii, 1930, 250 in text (Chatham, Mass.).—Fitzpatrick, Wils. Bull., xlii, 1930, 125 (ne. Colorado).—Kitchin, Murrelet, xi, Sept. 1930, 72, in text (Washington: Westport, Grays Harbor County; records).—Walkinshaw, Auk, xlvii, 1930, 251, in text (winter, Calhoun County, Mich.).—Wetmore, Auk, xlvii, 1930, 81 (seen between Naples and North Cohocton, N. Y.); Condor, xxxvii, 1935, 176, in text (meas.); Proc. U. S. Nat. Mus., lxxxvi, 1939, 180 (Tennessee, throughout); lxxxviii, 1940, 533 (Kentucky, throughout).—[Arthur ?], Birds Louisiana, 1931, 188 (descr.; status, Louisiana).—Baerg, Univ. Arkansas Agr. Exp. Sta. Bull. 258, 1931, 42 (descr.; range; habits; Arkansas).—Bailey and Wright, Wils. Bull., xliii, 1931, 202 (s. Louisiana).—Ball, Auk, xlviii, 1931, 599, in text (Harpers Ferry, W. Va.).—Bradlee and Mowbray, Proc. Boston Soc. Nat. Hist., xxxix, 1931, 327 (Bermuda; occ. vis.; records).—Christy, Auk, xlviii, 1931, 374 (change of status; Sandusky Bay, Lake Erie).—Peters, Check-list Birds of World, i, 1931, 190, part (distr.); Bird-Banding, iv, 1933, 70 in text (parasites of); Bird-Banding, vii, 1936, 12 (Florida; Illinois; North Carolina; ext. parasites).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 21 (Missouri; common summer res.; s. Missouri; uncommon winter res.).—Groebbels, Der Vögel, i, 1932, 646 (longevity), 664 (body temperature); ii, 1937, 169 (data on breeding biology).—Hicks, Wils. Bull., xlv, 1933, 139, in text (Ohio; records; statistics); 178, in text (Ashtabula County, Ohio; uncommon; nests); Auk, li, 1934, 401, in text (Fredericktown, Ohio; winter); Wils. Bull., xlviii, 1936, 51, in text (Indiana, migr. flight).—Jones, Auk, l, 1933, 431 (Virginia; wilderness; partial albinism); lii, 1935, 444, in text (Virginia; habits).—Tomkins, Wils. Bull., xlv, 1933, 200, in text (flight habits).—Williams, Auk, l, 1933, 299 (Princeton, N. J.; breeding; nest and eggs).—Allard, Auk, li, 1934, 514 (voice).—Maslowski, Auk, li, 1934, 299 (Cler-

mont County, Ohio; aerial nesting).—Taverner, Birds Canada, 1934, 116, in text (Canada).—Broun, Auk, lii, 1935, 234 (Hawk Mountain, Pa.); lvi, 1939, 432, in text (Hawk Mountain, Pa.; migration).—Butler, Auk, lii, 1935, 303, in text (Madison, Ind.; seen).—Fisher, Proc. Biol. Soc. Washington, xlviii, 1935, 160 (Plummers Island, Md.).—Allen and Peterson, Auk, liii, 1936, 402, in text (Cape May County, N. J.; migr.).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 19, in text (Ontario form of this species).—Harper, Auk, liii, 1936, 390, in text (meas.).—Roads, Wils. Bull., xlviii, 1936, 219, in text (habits).—Spiker, Auk, liii, 1936, 76, in text (Warrenton, Va.; 2 carcasses).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 111 (Connecticut Valley, Mass.; status; habits).—Houghton, Auk, liv, 1937, 505, in text (parasite of).—Murphey, Contr. Charleston Mus., ix, 1937, 8 (Savannah Valley, Ga.; permanent resident; breeds; common but apparently slowly diminishing in numbers).—Sprunt, Auk, liv, 1937, 383, text (killed by auto); lxiii, 1946, 261 (predation).—Tyler, *in* Bent, U. S. Nat. Mus. Bull. 167, 1937, 12 (life hist.).—Deaderick, Wils. Bull., l, 1938, 262, in text (Arkansas; Hot springs National Park; common permanent resident).—Ogburn, Auk, lv, 1938, 522, in text (Westchester County, N. Y.; common transient).—Poole, Auk, lv, 1938, 517, in text (weight and wing area).—Tyrrell, Auk, lv, 1938, 468–470 (nesting; habits; photos).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 8 (Michigan; summer res. breeding; records).—Broun, Auk, lvi, 1939, 432, in text (Hawk Mountain, Pa.; migration).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 46 (summer resident).—Pettingill, Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 329 (Grand Manan; specs. before 1900).—Sheppard, Auk, lvi, 1939, 74, in text (Norfolk County, Ontario; breeding).—Stuewer, Wils. Bull., li, 1939, 183, in text (Allegan County, Mich.; spec. nest; meas.).—Campbell, Bull. Toledo Mus. Sci., i, 1940, 53 (Lucas County, Ohio; fairly common summer res.; young).—Erickson, Auk, lvii, 1940, 517, in text (host to sarcocystis).—Lehmann, Rev. Acad. Colomb., iii, 1940, 460, in text (North America).—McIlhenny, Bird-Banding, xi, 1940, 106, in text (Avery Island, La.; common).—Todd, Birds Western Pennsylvania, 1940, 122 (w. Pennsylvania; descr.; life hist.; syn.).—Trautman, Misc. Publ. Univ. Michigan Mus. Zool. No. 44, 1940, 206 (Buckeye Lake, Ohio; common spring and fall transient, common in summer; nest).—Birckhead, Auk, lviii, 1941, 94, in text (Fall River, R. I.; seen).—Elliot, Auk, lviii, 1941, 403 (Jacksonville, Vt.; records).—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 11 (sw. Ohio; very common summer res.; nest; few winter records).—Hamilton, Auk, lviii, 1941, 254 (Fort Myers, Fla.; habits).—Cruickshank, Birds around New York City, 1942, 126 (New York City region; habits; status).—Pearson, Brimley, and Brimley, Birds North Carolina, 1942, 86 (North Carolina; status; habits).—Sutton, Auk, lix, 1942, 305, in text (Nain, Newfoundland, Labrador; spec.).—Rapp, Auk, lx, 1943, 95, in text (New Jersey; feeding habits).—Hill, Auk, lxi, 1944, 230 (meas. and sex dimorphism).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 87 (Kansas; reg. summer res.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; common res.).—van Rossem, Condor, xlviii, 1946, 181, in text.

Cathartes aura carolinensis Townsend, Mem. Nuttall Orn. Club, No. 5, 1920, 97 (Essex County, Mass.; acc. vis.).

CATHARTES AURA TETER Friedmann

Western Turkey Vulture

Similar to *C. aura aura*, but with a longer tail, wing as in the nominate race.

Adult male.—Wing 495–530 (508.8); tail 245–271 (258.8); culmen from cere 22–25.5 (24.2); tarsus 59–68 (64.3); middle toe without claw 58–67 (62.9 mm.) (13 specimens).

Adult female.—Wing 487–535 (506.5); tail 246–281 (262.6); culmen from cere 22–26 (24.4); tarsus 59–73 (65.1); middle toe without claw 62–70 (65.3 mm.) (21 specimens).

Range.—Austral zones from southern British Columbia, central Alberta, Saskatchewan, southern Manitoba, western Ontario, Wisconsin, and northern Minnesota south to southern Baja California, northern Mexico (Sonora (Guadaloupe Canyon), Chihuahua, Michoacán, and Tamaulipas, south in the tablelands to the Distrito Federal) east to eastern Texas, Oklahoma, Kansas, Nebraska, the Dakotas, Minnesota, and south central Michigan, intergrading with *septentrionalis* in southeastern Michigan and probably in western Missouri. Winters from Vancouver Island (Comox) and California to Nebraska and southward, at least as far as Panama and probably to Colombia.

Type locality.—Riverside, Calif.

Vultur aura Linnaeus, Syst. Nat., ed. 10, i, 1758, 86, part; ed. 12, i, 1766, 122, part.—Gmelin, Syst. Nat., i, pt. 1, 1788, 246, part.—Latham, Index Orn., i, 1790, 4, part; Ois. Amér. Sept., i, 1807, 25, pl. 2 *bis*, part.—Wilson, Amer. Orn., ix, 1814, 96, pl. 75, fig. 1, part.—Bonaparte, Ann. Lyc. Nat. Hist. New York, iii, 1824, 842, part (crit.).—Audubon, Edinburgh Journ. Sci., vi, 1827, 156, in text, part (compared with *Coragyps*).

Cathartes aura Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 342, part; Obs. Wilson's Amer. Orn., 1826 [2], part; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 23, part; Contr. Maclurian Lyc., i, 1827, 10, part; Consp. Gen. Av., i, 1850, 9, part; Rev. Mag. Zool., vi, 1854, 530, part.—Swainson and Richardson, Fauna Bor. Amer., ii, 1831, 4, part.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 43; ed. 2, 1840, 44, part.—Audubon, Orn. Biogr., ii, 1834, 296, pl. 151; v, 1839, 339, part; Synopsis, 1839, 2, part; Birds Amer., 8vo ed., i, 1840, 15, pl. 2, part.—Townsend, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151 (nw. United States).—Gambel, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 44 (California); *in* Wiegmann's Arch. für Naturg., i, 1848, 83 (California); Journ. Acad. Nat. Sci. Philadelphia, i, 1847, 25.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, iv, 1849, 159, part (crit.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 4, part.—Henry, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 307 (New Mexico); xi, 1859, 104 (New Mexico).—Maximilian, Journ. für Orn., 1856, 119, part (history, descr., etc.); 1858, 2 (w. United States).—Brewer, North Amer. Ool., i, 1857, 1, pl. 1, figs. 1, 2, part.—Newberry, Rep. Pacific R. R. Surv., vi, chapt. 2, 1857, 73 (California; Oregon).—Baird, Rep. U. S. and Mex. Bound. Surv. ii, pt. 2, 1859, 3 (Matamoros, Tamaulipas); Cat. North Amer. Birds, 1859, No. 1, part; *in* Cooper, Orn. California, Land Birds, 1870, 502.—Heermann, Rep. Pacific R. R. Surv.,

x, pt. 4, No. 2, 1859, 29 (California; Arizona; habits).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 140, part (Puget Sound, etc., Wash.; Fort Dalles, Oreg.; Bois des Sioux River, near Pembina, N. Dak.).—Blakiston, Ibis, 1863, 42 (Saskatchewan; Red River Settlement, Manitoba; Fort Carleton, lat. 53° N.).—Schlegel, Mus. Pays-Bas, ii, No. 10, livr. 2, 1863, 3, part (monogr.); No. 36, livr. 10, 1873, 139, part.—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 42, part (Monterey, Calif.; New Mexico).—Dresser, Ibis, 1865, 322 (s. Texas).—Coues, Proc. Acad. Nat. Sci. Philadelphia, xviii, 1866, 42 (Fort Whipple, Ariz.); Key North Amer. Birds, 1872, 222, in part; Check List North Amer. Birds, 1873, No. 365, part; Birds Northwest, 1874, 379, part; U. S. Geol. and Geogr. Surv. Terr., Bull. 4, 1878, 627 (Fort Randall and Red River, N. Dak.; frequent); Check List North Amer. Birds, ed. 2, 1882, No. 537, part; Key North Amer. Birds, ed. 2, 1884, 554, part.—Brown, Ibis, 1868, 418 (Vancouver Island, Brit. Columbia).—Trippe, Comm. Essex Inst., vi, 1871, 113 (Minnesota; nests).—Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado; everywhere below pine region); Proc. U. S. Nat. Mus., iii, 1880, 195, part; Nom. North Amer. Birds, 1881, No. 454, part; Man. North Amer. Birds, 1887, 221, part.—Allen, Proc. Boston Soc. Nat. Hist., xvii, 1874, 35 (Montana and Dakota; all way from the Missouri to the Yellowstone).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 50 (Minnesota; summer res.; breeds; formerly more common).—Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (Utah).—Hoffman, Proc. Boston Soc. Nat. Hist., xvii, 1875, 174 (Grand River Agency, Dakota Territory; freq.).—Nelson, Proc. Boston Soc. Nat. Hist., xvii, 1875, 351 (Elko, Nev.).—Roberts and Benner, Bull. Nuttall Orn. Club, v, 1880, 17 (Grant County, Minn.).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 177 (common names, Mexico).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 325, part.—Anthony, Auk, iii, 1886, 164 (Washington County, Oreg., common in summer).—Seton, Auk, iii, 1886, 153 (Assiniboine Valley, w. Manitoba, common summer res.).—Goss, Birds Kansas, 1891, 243 (genl.; habits; Kansas).—Thompson, Proc. U. S. Nat. Mus. xiii, 1891, 528 (localities in Manitoba).—Hatch, Geol. and Nat. Hist. Surv., Minnesota, 1892, 175, 453, part (Minnesota).—Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 1893, 39 (British Columbia, as far north as Lake Hache; numerous about Puget Sound).—Boucard, Travels of a Naturalist, 1894, 51 (afraid of condors).—Cooke, Colorado State Agr. Coll. Bull. 37, 1897, 73 (Colorado; common summer resident; distr.).—Merrill, Auk, xiv, 1897, 352 (Fort Sherman, Idaho, Apr. to Sept.).—Lantz, Trans. Kansas Acad. Sci., for 1896–1897 (1899), 254 (Kansas; summer res.; abund.).—Sharpe, Hand-list, i, 1899, 240, part.—Cobeaux, Ottawa Nat., 1900, 27 (s. Saskatchewan; breeding?).—McGregor, Pacific Coast Avif., No. 2, 1901, 6 (California; Santa Cruz County; common; breeds).—Bailey, Handbook Birds western United States, 1902, 145 (descr.; distr.).—Brewster, Bull. Mus. Comp. Zool., xli, No. 1, 1902, 80 (Cape region, Lower California, res.; Magdalena Island; Santa Margarita Island).—Grinnell, Pacific Coast Avif., No. 3, 1902, 131 (California; common summer res.; irreg. winter); Condor, xxxv, 1933, 166, in text (California; flight habits).—Woodcock, Oregon Agr. Exp. Sta. Bull. 68, 1902, 30 (Oregon range).—Fleming, Auk, xx, 1903, 66 (Moose Factory, n. Ontario, June 1898).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 60 (Wisconsin; habits).—Currier, Auk, xxi, 1904, 34 (Leech Lake, Minn.; May and June, not common).—Swarth, Pacific Coast Avif.,

No. 4, 1904, 5 (Huachuca Mountains, Ariz.; fairly common summer; breeds in Ramsay Canyon).—Swales, Auk, xxii, 1905, 413 (Genesee County, Mich.; Apr. 27, 1905; Oct. 10, 1888).—Roberts, *in* Wilcox's Hist. Becker County, Minn., 1907, 171 (common).—Kermode, Prov. Mus. Victoria, 1909, 43 (Vancouver Island; Chilliwack, and Okanagan, British Columbia).—Taverner, Auk, xxxvi, 1919, 14 (Ross's Ranch, etc.; Alberta, Aug. 20 to Sept. 4); Birds Western Canada, 1926, 183 (fig.; descr.; habits, w. Canada); Auk, xliv, 1927, 221 (Duck Mountain, Manitoba, and Elk Island National Park, Canada); Nat. Mus. Canada, Bull. 50, 1928, 92 (near Belvedere, Alberta; 1914 record).—Larson, Wils. Bull., xl, 1928, 46 (e. McKenzie County, N. Dak.).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea, Calif.).—?Wetmore, Condor, xxxiv, 1932, 142 (remains, cave deposits, n. of Carlsbad, N. Mex.).—Howard and Dodson, Condor, xxxv, 1933, 235, in text (Point Mugu, Calif.; shellmound remains).—Howard and Miller, Condor, xxxv, 1933, 15 and 17, in text (New Mexico; remains; cave deposits).—Davis, Murrelet, xv, 1934, 72 (Owyhee County, Idaho; record).—Miller, Condor, xxxvii, 1935, 76, in text (McKittrick; Calif.; Pleistocene bones).—Grinnell and Linsdale, Vert. Anim. Point Lobos Reserve, 1936, 38, 52 (Point Lobos, Calif.; 4 spring rec.).—Thomson, Ibis, vi, 1936, 493 (Panama; migr.).—Carter, Condor, xxxix, 1937, 212, in text (San Bernardino County, Calif.; common).—Dixon and Bond, Condor, xxxix, 1937, 100, in text (California: Tule Lake vicinity; occas.).—Miller and Fisher, Condor, xl, 1938, 248 and 252, in text (feather arrangement).—Hargrave, Condor, xli, 1939, 207 and 209, in text (Awatobi Pueblo, Utah; prehist. bone).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 96 (w. Texas: Guadalupe Mountains; permanent res.); No. 12, 1942, 188 (se. Coahuila; records; not uncommon).—Sutton and Burleigh, Condor, xlii, 1940, 259, text (San Luis Potosí, Mexico; common); Wils. Bull., lii, 1940, 223, text (Tamazunchale, Mexico; common); Ann. Carnegie Mus., xxviii, 1941, 70 (Hidalgo, common).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Harris, Condor, xliii, 1941, 21, 36, 43, in text (California; meas.).—Laing, Condor, xliv, 1942, 176 (coastal British Columbia).—Sutton and Phillips, Condor, xliv, 1942, 59 (Papago Indian Reservation, Ariz.).—Stevenson, Condor, xliv, 1942, 109 (central Panhandle of Texas).—Work and Wool, Condor, xliv, 1942, 149, in text (California; nesting habits).—Allan and Sime, Wils. Bull., lv, 1943, 32 (Texas Panhandle; common, widely distributed).—Dixon, Condor, xlv, 1943, 207 (Kings Canyon National Park, Calif.).—Fisher, Condor, xlv, 1943, 72, text (pterylosis).—Munro, Can. Journ. Research, D, xxiii, 1945, 53 (Cariboo Parklands, British Columbia; occurs everywhere).—Wilson, Condor, xlvii, 1945, 150 (Kittleman Hills area, Calif.).—Bond, Condor, xlviii, 1946, 107, in text (competition with duck hawks).

Catharista aura Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 3, part; Hand-list, i, 1869, 3, No. 18, part.

Rhinogryphus aura Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 344, part; Bull. Essex Inst., vi, 1874, 172 (between Sacramento City and foothills of Sierra Nevada; rare); vii, 1875, 15 (Truckee Valley, abund.), 24 (City of Rocks, s. Idaho), 34 (Parleys Peak, Wasatch Mountains), 39 (Nevada); Orn. 40th Parallel, 1877, 593 (Sacramento Valley Calif.; Pyramid Lake, etc., Nevada; City of Rocks, Idaho, etc.; habits, meas.; colors of soft parts).—Henshaw, Zool. Expl. W. 100th Meridian, 1875, 428 (Arizona; New Mexico; Utah; Colorado).—Sharpe, Linn. Soc. London,

Journ. Zool., xiii, 1876, 21, map 6, part (geogr. range).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 137 (Camp Harney, Oreg.; fairly common; breeds).—Gurney, List Diurn. Birds Prey, 1884, 4, part; Cat. Birds Prey, 1894, 17, part.

Oenops aura Sharpe, Cat. Birds Brit. Mus., i, 1874, 25, part (Vancouver Islands, w. side Rocky Mountains), 455 (California).

Cathartes aura septentrionalis (not of Wied) Bangs and Zappey, Amer. Nat., xxxix, 1905, 190, in text, part.—Nelson, Proc. Biol. Soc. Washington, xviii, 1905, 125, part (crit.).—American Ornithologists' Union, Auk, xxv, 1908, 369; Check List, ed. 3, 1910, 152; ed. 4, 1931, 61, part (distr.).—Preble, North Amer. Fauna, No. 27, 1908, 351 (Edmonton, Alberta, 3 seen, May 1897).—Cory, Publ. Field Mus. Nat. Hist. No. 131, 1909, 449, part (Wisconsin).—Dawson and Bowles, Birds Washington, ii, 1909, 549 (Washington; habits; descr.).—Chaney, Auk, xxvii, 1910, 273 (Madison County, Mich.; 1 pair, July 26).—Brooks and Cobb, Auk, xxviii, 1911, 468 (near Birch Lake, e. Alberta, Sept. 7).—Honeywill, Auk, xxviii, 1911, 232 (Crooked Lake, Minn.).—Saunders, Auk, xxviii, 1911, 35 (Gallatin County, Mont.; rare summer res.); xlv, 1928, 385, in text (winter, Murray County, Okla.).—Barrows, Michigan Bird Life, 1912, 254, part (Michigan).—Grinnell, Pacific Coast Avif., No. 8, 1912, 9 (California); No. 11, 1915, 63 (whole of California, except highest mountains; common spring, summer, and autumn; wintering n. to Solano County); Proc. California Acad. Sci., ser. 4, xiii, No. 5, 1923, 62 (Furnace Creek Ranch, Death Valley, Calif.); Univ. California Publ. Zool., xxxii, 1928, 106 (distr.; Lower California).—Sclater, Hist. Birds Colorado, 1912, 163 (Colorado; fairly common summer resident).—Swarth, Rep. Birds and Mamm. Vancouver Island, 1912, 27 (s. part, common in summer, Alberni; Beaver Creek; Errington); Pacific Coast Avif., No. 10, 1914, 24 (Arizona; common summer res.; winter in s. Arizona); Proc. California Acad. Sci., ser. 4, xviii, 1929, 292 (abundant, s. Arizona; habits).—Willett, Pacific Coast Avif., No. 7, 1912, 45 (s. California; Pacific slope; common res.; eggs).—Bunker, Univ. Kansas Sci. Bull., vii, 1913, 146.—Grave and Walker, Birds Wyoming, 1913, 41 (Wyoming; rather uncommon summer res. in eastern part).—Tyler, Pacific Coast Avif., No. 9, 1913, 37 (Fresno, Calif.; permanent res., habits; some leave in winter).—Zimmer, Proc. Nebraska Orn. Union, v, pt. 5, 1913, 72 (Nebraska; Thomas County Forest Reserve).—Brooks, Auk, xxxiv, 1917, 37 (Chilliwack, British Columbia; common summer resident).—Shelton, Univ. Oregon Bull., new ser., xiv, No. 4, 1917, 20, 26 (w. c. Oregon; breeds).—Cahn, Wils. Bull., xxxii, 1920, 111 (Itasca County, Minn.; occas.); Condor, xxiv, 1922, 176 (Padre Island, Corpus Christi, Flour Bluff, Tex.); Wils. Bull., xxxix, 1927, 27 (summer, Vilas County, Wis.).—Johnson, Auk, xxxvii, 1920, 544 (Lake County, Minn., July 20, 1914).—Burleigh, Auk, xxxviii, 1921, 554 (Warland, Lincoln County, Mont., June 29 to Sept. 10); xlvi, 1929, 510, (Seattle, Wash.).—Over and Thoms, Birds South Dakota, 1921, 80 (South Dakota; nest).—Bassett, Condor, xxiv, 1922, 99, in text (wintering Chico, Calif.).—Gabrielson, Condor, xxiv, 1922, 33 (Harney Valley, Oreg., numerous in Sept. 1919, feeding on poisoned jack rabbits); Auk, xli, 1924, 555 (Enterprise; Imnaha Canyon, Oreg.); Condor, xxxiii, 1931, 112 (common, Rogue River Valley, Oreg.).—Rowan, Auk, xxxix, 1922, 227 (Indian Bay, etc., Manitoba, frequent).—Swann, Synop. Accip., pt. 3, 1922, addendum to pp. 3–4, part (North America s. to Mexican plateau); Monogr. Birds Prey, i, 1924, 14, part (monogr.).—Dawson, Birds California (stud. ed.), iii, 1923, 1736 (genl.; California).—Horning, Auk, xl, 1923, 324 (Misintick

Lake, Alberta).—Jackson, Auk, xl, 1923, 481 (near Little Arborvitae Lake, ne. Wisconsin).—Oberholser, Auk, xl, 1923, 679, part.—Wood, Univ. Michigan Mus. Zool., Misc. Publ. 10, 1923, 37 (Ardoch, Walsh County, N. Dak., Oct. 4, 1914; Grafton, Apr. 20, 1922 and May 22, 1921; Bismarck, July 19, 1921; Devils Lake, May 9 and 18, 1921).—Bent, Wils. Bull., xxxvi, 1924, 13 (status, se. Texas).—de Laubenfels, Wils. Bull., xxxvi, 1924, 168 (Brownsville, Tex.).—Gabrielson and Jewett, Auk, xli, 1924, 298 (Little Missouri below Medora; n. of Killdeer; North Dakota); Birds Oregon, 1940, 179 (Oregon; common summer res.; descr. distr., habits).—Gignoux, Condor, xxvi, 1924, 114, in text (near Gridley, Calif.; winter).—Grinnell and Storer, Animal Life in Yosemite, 1924, 279 (descr.; distr.; habits; Yosemite).—Hanna, Condor, xxvi, 1924, 147, in text (egg weight).—Mitchell, Can. Field Nat., xxxviii, 1924, 108 (Saskatchewan; fairly common summer vis.).—Nice and Nice, Birds Oklahoma, 1924, 39 (general; Oklahoma).—Richards, Condor, xxvi, 1924, 99 (Grass Valley, distr.; California).—Anthony, Proc. California Acad. Sci., ser. 4, xiv, 1925, 295 (San Benitos Islands, etc., Mexico).—Friedmann, Auk, xlii, 1925, 545 (Lower Rio Grande Valley, Tex.).—Griscom and Crosby, Auk, xlii, 1925, 534 (status, Brownsville, Tex.).—Larson, Wils. Bull., xxxvii, 1925, 28 (Sioux Falls, S. Dak.).—Michael, Condor, xxvii, 1925, 110 (Yosemite).—Pemberton, Condor, xxvii, 1925, 38, in text (voice).—Simmons, Birds Austin Region, 1925, 92 (Austin, Tex.; habits; descr.; etc.).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 94 (descr.; chars.).—Bruner, Condor, xxviii, 1926, 232 (Baboquivari Mountains, Ariz.).—Huey, Auk, xliii, 1926, 352 (Santo Domingo, nw. Lower California); Condor, xxix, 1927, 153 (Rancho San Pablo, Lower California).—Kelso, Ibis, 1926, 702 (Arrow Lakes, British Columbia).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 296 (Revillagigedo Island, Mexico); ser. 4, xvi, 1927, 19 (San Blas, María Madre, Mexico).—Taverner, Birds Western Canada, 1926, 183, text (genl., w. Canada).—Williams, Wils. Bull., xxxviii, 1926, 30 (Red River Valley, N. Dak.).—Lamb, Condor, xxix, 1927, 70 (Natividad Island).—Linsdale, Auk. xliv, 1927, 53 (Pratt, Sun City, and near Coolidge, Kans.); Univ. Kansas Sci. Bull., xviii, 1928, 535 (near Geary, e. Kansas).—Linsdale and Hall, Wils. Bull., xxxix, 1927, 96 (Douglas County, Kans.).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 296 (Modoc County, Calif.).—Schorger, Auk, xliv, 1927, 236 (Potosi, Wis.).—Bailey, Birds New Mexico, 1928, 151 (genl.; New Mexico).—Palmer, Condor, xxx, 1928, 287, text.—Swenk, Wils. Bull., xl, 1928, 29, text (winter, s. Arizona).—Abbott, Wils. Bull., xli, 1929, 44 (common, Uvalde, Tex.); Auk, lviii, 1941, 417, text (Guaymas, Sonora, Mexico; records).—Leech, Condor, xxxi, 1929, 21 (roosting habits; California).—Miller, Taylor, and Swarth, Condor, xxxi, 1929, 77, in text (wintering, Tucson, Ariz.).—Bancroft, Condor, xxxii, 1930, 27 (e. Lower California; abundant).—Fuller and Bole, Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 45 (obs.; Wyoming).—Gardner, Condor, xxxii, 1930, 159 (erythrocyte count).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 183 (distr.; Lassen Peak region, n. California).—Nice, Birds Oklahoma, rev. ed., 1931, 66 (genl.; Oklahoma); Wils. Bull., xlvi, 1934, 94, text (Oklahoma records); Auk, lv, 1938, 121, text (McCurtain County, Okla.).—Peters, Check-list Birds World, i, 1931, 190 part (distr.).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 241 (Sonora, Mexico); vii, 1932, 131 (Tiburón Island, Sonora, Mexico; record).—Cumming, Murrelet, xiii, 1932, 6 (Vancouver, Brit. Columbia; casual migr.).—Edson, Murrelet, xiii, 1932, 42 (Washington: Grand Coulee and Vantage;

records).—Roberts, Birds Minnesota, i, 1932, 294 (distr.; habits; Minnesota).—Stanford, Proc. Utah Acad. Sci., ix, 1932, 72 (n. Utah, west of Logan; several seen).—Hall, Murrelet, xiv, 1933, 69 (Sandy River, Oreg.; hist.; prob. record 1806); xv, 1934, 13 (Columbia River, Wash.; list).—Stoner, Condor, xxxv, 1933, 162, in text (Napa Valley, Calif.; seen; winter).—Willett, Pacific Coast Avif., No. 21, 1933, 38 (sw. California, common res.; nest., syn.).—Anderson, Wils. Bull., xlvi, 1934, 264, in text (Tucson, Ariz.; abundant).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 7 (w. Panhandle, Okla.).—Dunlavy, Auk, lii, 1935, 428, in text (Los Angeles, Calif.; distr.).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 135, in text (Wyoming; migr.).—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 57 (San Juan Islands, Wash., summer res.).—Rowley, Condor, xxxvii, 1935, 163, in text (Lower California; abund.).—Youngworth, Wils. Bull., xlvii, 1935, 214, in text (Fort Sisseton, S. Dak.; records).—Imler, Trans. Kansas Acad. Sci., xxxix, 1936, 299 (Rooks County, Kans.; fairly common summer res.); Bird-Banding, viii, 1937, 167, in text (Rooks County, Kans.; weight).—Jewett, Murrelet, xvii, 1936, 42 (Harvey County, Oreg.; common; nests).—Alexander, Univ. Colorado Stud. Zool. xxiv, 1937, 90 (Boulder County, Colo.; infrequent summer res.; spec.).—Griffee and Rapraeger, Murrelet, xviii, 1937, 16 (Portland, Oreg.; young; rec. 1934).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas; common summer res.; less common than formerly).—McAllister and Marshall, Auk, lxii, 1945, 182 (Fremont National Forest, Oreg.).

Cathartes aura aura Swann, Synop. Accip., pt. 1, 1921, 3, part.—Oberholser, Auk, xxxix, 1922, 247, part (name for northern form).

Cathartes aura teter Friedmann, Proc. Biol. Soc. Washington, xlvi, 1933, 187 (original descr.; range).—Willett, Pacific Coast Avif., No. 21, 1933, 38.—Huey, Auk, lii, 1935, 251 (Punta Penascosa, Mexico; common); Trans. San Diego Soc. Nat. Hist., ix, 1942, 363 (Organ Pipe Cactus National Monument, Ariz.; common).—Wetmore, Condor, xxxvii, 1935, 176, in text (meas.); Smiths. Misc. Coll., cvi, No. 1, 1946, 24, in text (Pearl Islands, Panama).—Brandt, Auk, liii, 1936, 325, in text (Brownsville, Tex.; specimens).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 41 (Nevada; summer res.; common; sev. records); Amer. Midl. Nat., xix, 1938, 37 (Toyabe Mountains, Nev.; probable nest; frequent but singly or in pairs as a rule).—Monson, Condor, xxxviii, 1936, 175, in text (Papago Indian Reservation, Ariz.; common).—Sutton, Auk, liii, 1936, 76, in text (Texas; habits); Ann. Carnegie Mus., xxvii, 1938, 175 (Tarrant County, Tex.; breeds).—van Rossem, Pacific Coast Avif., No. 24, 1936, 19 (Charleston Mountains, Nev.; date of only record indicates summer vis.; fact that flock was seen only once indicates casual or transient occurrence); Occ. Pap. Mus. Zool., Louisiana State Univ., No. 21, 1945, 52 (Sonora; common throughout state); Condor, xlviii, 1946, 181, in text.—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 40 (Azuero Peninsula, Panama; spec.).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; reg. Feb. to Sept.).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 16, in text (Brewster County, Tex.; crit.).—Compton, Univ. California Publ. Zool., xlii, 1938, 175, 180, 188, 194, 195, 200, 201, 203, 205, 206 (pterylosis), 208 (plantar tendons).—Oberholser, Bird Life Louisiana, 1938, 152 (Louisiana; casual in central southern part of State; only rec. Morgan City, Nov. 14, 1925).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 8, in text (Michigan).—Niedrach and Rockwell, Birds of Denver and Mountain Parks, 1939, 47, in text (mentioned).—Steuwer, Wils. Bull.,

li, 1939, 183, in text (mentioned).—Bond, Condor, xlii, 1940, 250, in text (Pyramid Lake, Nev.; few seen; nest).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 96 (mentioned).—Davis, Condor, xlii, 1940, 81, in text (Brazos County, Tex.; permanent res.).—Rivers, Condor, xliii, 1941, 65 in text (Whiterock, Nev.; feeding habits).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 525, in text (Michoacán; in plateau, replaced by *aura* in lowlands).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 375 (Uinta Basin, Utah).—Behle, Bull. Univ. Utah, xxxiv, No. 2, 1943, 23, 25 (sw. Utah; Washington County; Pine Valley Mountain region); Condor, xlvi, 1944, 70 (Utah; common summer res.).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 94 (California; present throughout year).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 8 (Nebraska; uncommon to rare summer res.; breeds).—Packard, Auk, lxii, 1945, 374 (Rocky Mountain National Park, Colo.).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 34 ("Navaho Country," se. Utah and ne. Arizona; common summer res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., i, 1947, 198 (Idaho).

Genus GYMNOGYPS Lesson

Gymnogyps Lesson, Écho du Monde Savant, sér. 2, vi, No. 44, Dec. 8, 1842, col. 1037. (Type, by monotypy, *Vultur californianus* Shaw.)

Pscudogryphus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 337, 338. (Type, by original designation and monotypy, *Vultur californianus* Shaw.)

Pseudogryps (emendation) Coues, Check List North Amer. Birds, ed. 2, 1882, 91, in text.

Oenops (part) Sharpe, Cat. Birds Brit. Mus., i, 1874, 28. (Type, *Cathartes aura*.)

Sarcorhamphus Reichenow, Die Vögel, i, 1913, 362, part.

Very large Cathartidae (wing more than 750 mm.), with anterior portion of head much elongated, the eyes being situated far behind a point midway between tip of bill and posterior extremity of head; cere elevated posteriorly, where higher than the depressed forehead; without caruncles or well-defined corrugation on naked skin of head or neck, and with the plumage commencing on lower neck with narrow lanceolate, acuminate, rather rigid feathers, these continued over breast and other underparts.

Bill relatively short and broad, the length of rhinotheca of maxilla rather less than one-fourth the length of entire head; mandible relatively deep, its depth at the prominent gonydeal angle a little less than half the depth of closed bill; cere relatively very long, its length from base of culmen to frontal depression equal to nearly twice the length (chord) of culmen and nearly equal to distance from frontal depression to posterior extremity of head, its anterior outline unique (in the family), advancing farthest on top, where receding from base of culmen at a very slight angle to a point nearly

halfway to the nostril, where forming an acute angle, then curving forward and downward and reaching the tomium at a point much posterior to its upper anterior extremity; nostril situated above middle point between rictus and top of cere and almost directly above the former, relatively small, elongate-ovate (its anterior end more or less pointed), its interior perforate portion occupying less than posterior half of nasal orifice. Wing very large, the remiges greatly developed; longest primaries extending decidedly beyond tips of longest secondaries and reaching to or beyond tip of tail, much bowed; fourth or fifth primary (from outside) longest, the first (outermost) intermediate in length between seventh and eighth; inner webs of seven outer primaries sinuated (the sinuation very slight on seventh), the second to seventh (from outside) with outer webs sinuated. Tail about half as long as wing, truncate, the rectrices (usually 12, sometimes 14) broad and rigid. Tarsus shorter than head (including bill), a little longer than middle toe.

Plumage and coloration.—Head and neck bare (covered with short down in young), except a triangular patch on forehead of short, closely appressed bristly feathers, extending backward to about middle of crown, forward as far as anterior end of nostrils, and sending a lateral branch downward to the rictus, covering most of the space between eye and base of bill; the bristly feathers of this area sparse at its contracted upper anterior extremity, but dense at the abruptly defined posterior border (on crown); skin of head and neck smooth, without caruncles or well-defined corrugations. Plumage commencing abruptly on lower neck in a ruff of lanceolate, acuminate, rather rigid feathers, these continued over breast, abdomen, and sides; plumage of upperparts hard, the feathers broad and sharply defined or imbricated. General color dull grayish black; adults with outer webs of greater wing coverts and secondaries light grayish, the former tipped and the latter edged with white, the axillars and under wing coverts white, bill whitish, and bare skin of head and neck yellow or orange in life; young with white on wings, feathers of upperparts margined with brown, bill and skin of head and neck dusky, the latter more-or-less covered with soft short sooty grayish down.

Nidification.—No nest, but eggs deposited in a cavity or recess among rocks or in a hollow stump or tree trunk; eggs 1–2, elongate-ovate, plain pale grayish green or dull greenish white.

Range.—Pacific coast of United States, chiefly in California. (Monotypic.)

The single species included in this very strongly characterized genus, the great California vulture, is now very rare and in danger of early extinction. It is fully the peer of the South American condor (*Vultur gryphus*) in size, as may be seen from the following

measurements of the skull and principal wing and leg bones, taken from an adult male of each species:

Species	Wing, from carpal joint to tip of longest primary	Humerus	Ulna and radius	Femur	Tibia	Tarsus	Length of skull (including bill)
	Mm.	*Mm.*	*Mm.*	*Mm.*	*Mm.*	*Mm.*	*Mm.*
Gymnogyps californianus	889	273.05	317.5	133.34	222.5	114.3	171.45
Vultur gryphus	838.2	267.97	304.8	146.05	218.44	120.64	149.86
Cathartes aura	584.2	152.4	184.15	72.39	122.17	65.53	92.71

As to the comparative weight and alar expanse of *Gymnogyps californianus* and *Vultur gryphus*, the data are meager, but give the following results:

Species	Weight	Extent of wings
Gymnogyps californianus.	*Lbs.*	*Cm.*
Three adult males (only two of them measured).	20–23 (21.5)	266.7–279.58 (276.07).
Three young of year (sex not determined)[1]	Not weighed; specimens eviscerated.	250.19–274.95 (264.79+).
Vultur gryphus: One adult female	17	262.25+.

[1] A very young bird of *G. californianus*, still in the down but "with pin-feathers just showing on his wings" stood 26½ inches high, spread 40 inches, and weighed 15 lbs.

No authentic record gives an alar expanse of much more than 9 feet 10 inches for either species, and though there are credible statements of specimens of both measuring 11 feet from tip to tip such specimens must, in the case of either, be exceptional.

GYMNOGYPS CALIFORNIANUS (Shaw)

California Condor

Adults (sexes alike).—Entire head and most of neck bare except for a few blackish bristlelike feathers on the forehead and a line in front of the eye; plumage of body, wings, and tail generally dusky neutral gray to sooty black, being washed slightly with fuscous on the breast and abdomen; the feathers of the back and rump, the scapulars, the lesser and median upper wing coverts narrowly edged with army brown; the greater upper wing coverts, remiges, and rectrices ashy neutral gray with a silvery quality, the greater upper wing coverts very broadly tipped with white; upper tail coverts like the rectrices but duller; feathers around the base of the neck lanceolate and slightly glossy, forming a ruff; feathers of breast and midanterior abdomen similarly lanceolate; inner secondaries externally margined with white on the concealed basal portion of the outer web; axillars and all the

under wing coverts except a rim around the total area covered by the coverts very broadly edged with white, the marginal coverts sooty black, the white coverts and axillars forming a large very conspicuous white area on the under side of the wing; cere and entire head bright ochraceous-orange except for loreal area, which is liberally sprinkled with

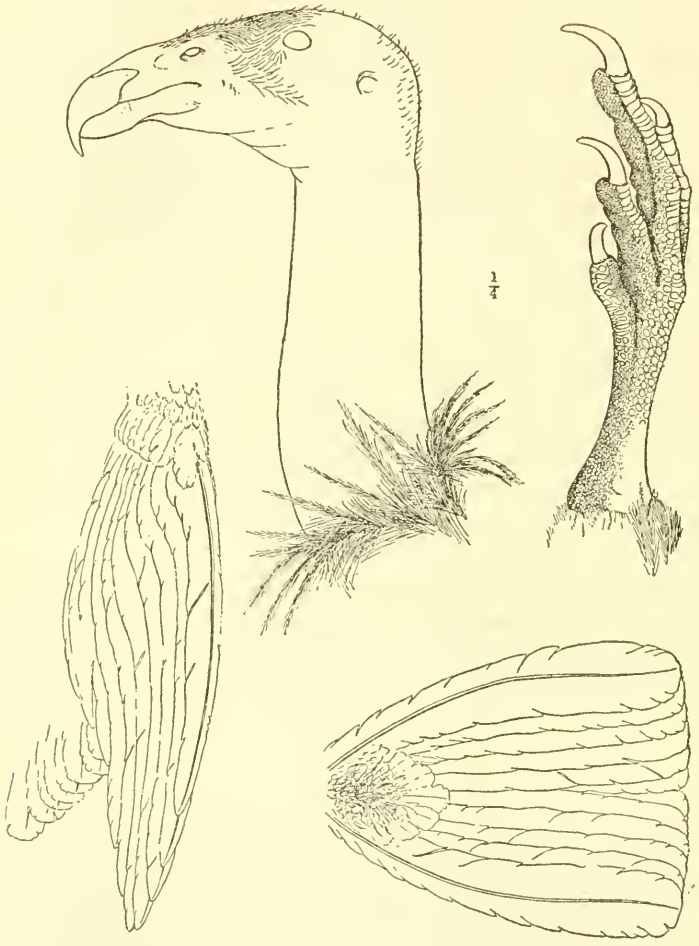

FIGURE 4.—*Gymnogyps californianus.*

black bristlelike feathers, giving it a blackish appearance; chin and upper throat like head; rest of throat light jasper red; hind neck pale grayish blue; bill whitish; iris scarlet; tarsus and toes alizarene pink; tongue, gape, and ear openings "gamboge."

Immature (sexes alike).—Similar to adults but with head completely feathered with fuscous down, the skin blackish; plumage of body, wings, and tail similar to adult, but with less gray on wings and tail,

no white on upper or under wing coverts (until fourth year when adult plumage is assumed) and with broader brown edges to the feathers of the upperparts.

Natal down.—White; the head and neck bare, at first, in newly hatched birds fleshy pink, later becoming ochraceous-yellow as the pigment develops; tarsus and toes and bill dark, obscure ochraceous (*ex* manuscript notes of A. S. Taylor sent to Robert Ridgway many years ago).

Adults.—Wing (chord) 764–813 (791.4); (arc) 806.5–914.5 (879.6); tail 330–380 (355.1); culmen from the cere 36.5–44.1 (38.3); tarsus 109–124.1 (114.1); middle toe without claw 101.6–122.6 (111.2 mm.)[29]; weight 16–26 pounds (ex Finlay, Condor, x, 1908, 7).

Range.—Pacific coast of the United States, from Baja California to Oregon (Drain, Douglas County, and to the Columbia River) and Washington (Fort Vancouver); casual in Arizona and southern Utah (and in southeastern Wyoming? [30]); also in southwestern Alberta (near Calgary). Now chiefly confined to the southern Coast Range (having been exterminated in many districts where formerly present) from Monterey and Benito Counties to Los Angeles County, northeast through the mountains and southern end of San Joaquin Valley into Tulare, Kern County, possibly along the western foothills of the Sierra Nevada as far as Fresno County. Originally this bird ranged eastward to Florida, where its bones have been found in Pleistocene strata; within much more recent times (in a geoogical sense) it occurred at least as far east as Mule Ears Peaks, Chisos Mountains, Tex. Known also from cave deposits in Nevada (Gypsum Cave) and Guadalupe Mountains, N. Mex.

There is one uncertain and unsatisfactory record of this bird in southern British Columbia,[31] which may be discounted.

Type locality.—Coast of California.

Vultur californianus Shaw, Nat. Misc., ix, 1797, i, pl. 301 ("coast of California" [San Francisco or Monterey?]; type now in coll. Brit. Mus.; see Sharpe, Cat. Birds Brit. Mus., i, 1874, 29, spec. *a*).—Latham, Index Orn. Suppl., 1801, pp. ii, 2.—Turton, Syst. Nat., i, 1806, 139.—Shaw, Gen. Zool., vii, pt. 1, 1809, 10.—Vieillot, Nouv. Dict. Hist. Nat., xxxvi, 1819, 450.—Douglas, Zool. Journ., iv, 1828, 328; Isis, 1831, 110.—Lesson, Traité d'Orn., ii, 1831, 26 (crit.).—Lichtenstein, Beitr. Orn. Fauna California, Phys. Abh. Akad. Wiss. Berlin, 1838 (1840), 424.—Hanna, Condor, xxxiii, 1931, 212 (reprint of Lichtenstein).—Grinnell, Univ. California Publ. Zool., xxxviii, 1932, 265 (type loc.; crit.).—Harris, Condor, 1941, 10, 17, 25, in text (crit.; tax. hist.; descr.; meas.).

Cathartes californianus Ranzani, Elem. Orn., III, vii, 1823, 23.—Bonaparte, Ann. Lyc. Nat. Hist. N. Y., ii, pt. 1, 1826, 22; Contr. Maclurian Lyc., 1827

[29] Nine specimens, seven males, two females (sexes alike in size).

[30] Cf. Forest and Stream, vii, No. 25, May 13, 1875, 329.

[31] Cf. Taverner, Birds Western Canada, 1926, 183.

9; Geogr. and Comp. List, 1838, 1; Consp. Gen. Av., i, 1850, 9.—Cuvier, Règne Anim., ed. 2, i, 1829, 316.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 39; ed. 2, 1840, 42; Water Birds, 1834, 557.—Kaup, Thierreich, ii, pt. 1, 1836, 229.—Audubon, Orn. Biogr., v, 1839, 240, pl. 426; Synopsis, 1839, 2; Birds Amer., 8vo ed., i, 1840, 12, pl. 1.—Townsend, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151.—Gambel, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 44 (habits; fresh colors of unfeathered parts); Journ. Acad. Nat. Sci. Philadelphia, ser. 2, i, 1847, 25 (habits; fresh colors of unfeathered parts); *in* Wiegmann's Arch. für Naturg., i, 1848, 82 (transl. of preceding reference).—Cassin, Cat. Vult. Mus. Philadelphia Acad. Sci., 1849, [4]; Illustr. Birds California, Texas, etc., 1854, 58; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 5.—Woodhouse, Rep. Sitgreaves Expl. Zuñi and Col. Rivers, 1853, 58.—Newberry, Rep. Pacific R. R. Surv., vi, pt. 4, 1855, 73 (habits).—Taylor, Zoologist, xiii, 1855, 4632; Ibis, 1859, 469 (descr., egg and young).—Bolle, Journ. für Orn., 1857, 50 (descr. and history).—Brewer, North Amer. Ool., i, 1857, 6; Amer. Nat., i, 1867, 114.—Schlegel, Handl. Dierk., i, 1857, 170, Vögel., pl. 1, fig. 8; Mus. Pays-Bas, ii, No. 10, livr. 2, 1863, 2 (monogr.); No. 36, livr, 10, 1873, 139.—Baird, Cat. North Amer. Birds, 1859, No. 2; Proc. Zool. Soc. London, 1868, 183, fig. (cut of full-grown young); *in* Cooper, Orn. California, Land Birds, 1870, 496.—Heermann, Rep. Pacific R. R. Surv., x, pt. 4, No. 2, 1859, 29 (habits).—Sclater, Ibis, 1859, 469 (egg, downy young); 1860, 278, pl. 8 (egg), pl. 9 (downy young) (habits; descr., egg and downy young); Proc. Zool. Soc. London, 1866, 366 (wood cut of full-grown young); 1868, 183 (woodcut of downy young).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 141 (Columbia River; habits).—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 39 (Monterey and Santa Lucia Mountains, Calif.; habits; descr., egg and young); Ibis, 1867, 254 (color of iris).—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 42 (Fort Yuma, Ariz., Sept.); Key North Amer. Birds, 1872, 222; Check List North Amer. Birds, 1873, No. 364; Birds Northwest, 1874, 384 (synonymy; range).—Cooper, Amer. Nat., iv, 1870, 757 (Monterey, Calif.).—Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (seen near Beaver, Utah).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 177 (common names, Mexico).—Harris, Condor, xliii, 1941, 17, 29, 41, 43, 47, 54, in text (tax. hist.; descr.; rec. from Wyoming and Colorado).

Cathartes Californiana Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7–8, 1894, 222 (Mexico; Lower California).

Sarcoramphus californianus Vigors, Zool. Journ., ii, 1825, 375.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 6.—Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 1.—Lichtenstein, Phys. Abh. Akad. Wiss. Berlin (1838), 1840, tab. 1.—Hall, Murrelet, xv, 1934, 13 (syn.).—Harris, Condor, xliii, 1941, 17, 20, in text (hist.; habits).

Sarcorhamphus californianus Bolle, Journ. für Orn., 1857, 50 (descr.; habits).—Reichenow, Die Vögel, i, 1913, 363.—Boxberger, Beitr. Fortpfl. Vög., vii, 1932, 118, in text (eggs in Thayer coll.).

Sarcoramphos californianus Harris, Condor, xliii, 1941, 20, in text (*ex* Douglas; mouth of Columbia River).

Sarcosamphus californianus Lichtenstein, Verh. Preuss. Akad. Wiss. Berlin, ii, 1837, 75 (Monterey, Calif.).—Hanna, Condor, xxxiii, 1931, 212 (reprint of Lichtenstein).—Harris, Condor, xliii, 1941, 17, in text (tax. hist.).

Gymnogyps californianus Lesson, Écho du Monde Savant, sér. 2, vi, 1842, 1037—American Ornithologists' Union, Auk, xviii, 1901, 299; Check-list ed. 3,

1910, 152; ed. 4, 1931, 62 (distr.).—Mailliard, Condor, iii, 1901, 122 (San Benito County, Calif.).—McGregor, Pacific Coast Avif., No. 2, 1901, 5 (Santa Cruz County, Calif.; breeds; formerly common).—Bailey, Handbook Birds western United States, 1902, 144 (descr.; distr.).—Grinnell, Pacific Coast Avif., No. 3, 1902, 31 (California; fairly common; resident in mountains n. to Tehama County); Auk, xxii, 1905, 382 (Mount Piños, Calif.); Pacific Coast Avif., No. 8, 1912, 9 (California, listed); Univ. California Publ. Zool., No. 10, 1913, 235 (formerly nesting in San Jacinto Mountains, but now extirpated); Pacific Coast Avif., No. 11, 1915, 62 (former range; now restricted to coast region from Monterey and San Benito to Los Angeles County and ne. through mountains and s. of San Joaquin Valley to ne. Kern County and possibly to Fresno County, Calif.); Univ. California Publ. Zool., xxxii, 1928, 106 (distr., Lower California); Condor, xxxv, 1933, 166, text (California; flight habits).—Finley, Condor, viii, 1906, 135 [=142], 9 cuts (mountains of s. California; habits; haunts, etc.); x, 1908, 1 [=10], 4 cuts ("historical data and range"), 59 [=65], 6 cuts ("home life," etc.).—Jenkins, Condor, viii, 1906, 126 (Monterey County, Calif.).—Ray, Auk, xxiii, 1906, 413 (Calabasas and Los Olivos, Calif.).—Gilman, Condor, ix, 1907, 106–108 (San Diego and San Bernardino Counties, Calif.; habits; meas.; etc.).—Stewart, Condor, x, 1908, 130 (San Joaquin Valley).—Arnold, Condor, xi, 1909, 101 (Kern County, Calif., flock of 18, Oct. 1, 1908).—Dawson and Bowles, Birds Washington, ii, 1909, 547 (Washington; habits; distr.).—Kermode, Prov. Mus. Victoria, 1909, 43 (mouth of Fraser River, British Columbia).—Willett, Pacific Coast Avif., No. 7, 1912, 45 (breeding in Sesquoa and San Roque Canyons, Santa Barbara County; Sespe Valley, Ventura County, Santa Monica Mountain; Los Angeles County; mountains near Pasadena); Condor, xxxiii, 1931, 31 (San Benito County, Calif.); Pacific Coast Avif., No. 21, 1933, 39 (sw. California; still resident in small numbers; breeds; synonyms; "probably less than 50 birds left in California").—Tyler, Pacific Coast Avif., No. 9, 1913, 37 (Fresno, Calif.; formerly common; now gone).—Chambers, Condor, xvii, 1915, 102, text (Los Angeles County, Calif.).—Pemberton and Carriger, Condor, xvii, 1915, 192 (Monterey County, Calif.).—Smith, Condor, xviii, 1916, 205, text (Humboldt County, Calif.).—Dawson, Birds California (stud. ed.), iii, 1923, 1717 (habits; descr.; etc.).—Dixon, Condor, xxvi, 1924, 192, text (breeding in captivity).—Swann, Monogr. Birds Prey, i, 1924, 19 (monogr.).—Wyman, Condor, xxvi, 1924, 153, text (captive).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 81 (bones; Rancho La Brea); Condor, xxxiii, 1931, 32 (bones, Gypsum Cave, Las Vegas, Nev.); xxxvii, 1935, 76, text.—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 94 (chars.; descr.).—Huey, Auk, xliii, 1926, 352 (Sierra San Pedro Mártir; nw. Lower California).—Leach, Condor, xxxi, 1929, 23, in text (former abundance; e. and n. California).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 506 (still exists in Tulare, Kern, Santa Barbara, Ventura, and Los Angeles Counties; also San Pedro Mártir distr. of Lower California).—Woods, Auk, xlvi, 1929, 386, in text (field characters).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 184 (distr., Lassen Peak region, n. California).—Howard, Condor, xxxii, 1930, 84, 87 (Pleistocene remains, Rancho La Brea).—Peters, Check-list Birds of World, i, 1931, 191 (distr.).—Wetmore, Condor, xxxiii, 1931, 76 (bones, north of Carlsbad, N. Mex.); xxxiv, 1932, 141 (remains, cave deposits, north of Carlsbad, N. Mex.).—Hall, Murrelet, xiv, 1933, 69, 75, text (Washington; hist.; records 1805, 1814); xv, 1934, 13 (Fort Vancouver, Wash.; hist.; spec.).

—Howard and Miller, Condor, xxxv, 1933, 15 (cave deposits, Organ Mountains, N. Mex.).—Meadows, Condor, xxxv, 1933, 234, in text (San Diego County, Calif.; 2 seen).—Wetmore and Friedmann, Condor, xxxv, 1933, 37 (bones, Mule Ears Peaks, Tex.).—Anderson, Condor, xxxvii, 1935, 170, in text (Los Angeles County, Calif.; recs.).—Dyer, Condor, xxxvi, 1935, 5, text (Calif.; habits).—Harper, Auk, liii, 1936, 386, in text (distr.).—Linsdale, Pacific Coast Avif., No. 23, 1936, 26, 41 (Nevada; complete ulna in Gypsum Cave, just out of Las Vegas ["perhaps not fossil, but . . . doubtless several centuries old"]).—Scott, Condor, xxxviii, 1936, 41, text (Lower California; status 1935).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 1 (life hist.).—Groebbels, Der Vögel, ii, 1937, 169 (data on breeding biology.).—Moffitt, Condor, xxxix, 1937, 160, text (feathers crit.).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 18 (Brewster County, Tex.; bones).—Miller and Fisher, Condor, xl, 1938, 248, text (pterylosis).—Rett, Condor, xl, 1938, 225, text (Santa Barbara, Calif.; specs.).—Gabrielson and Jewett, Birds Oregon, 1940, 180 (Oregon; extinct now; descr.; distr.; photo).—Todd, Birds Western Pennsylvania, 1940, 122, in text.—Harris, Condor, xliii, 1941, 3, 8, text (hist.; crit.).—May, Condor, xliii, 1941, 199, in text (San Jacinto Mountains, Calif.).—Miller, Murrelet, xxiii, 1942, 77 (bone from s. Oregon).—Fisher, Condor, xlv, 1943, 72, in text (pterylosis); xlvi, 1944, 274, 289 (skull); Auk, lxii, 1945, 126, 127 (flight and musculature).—Behle, Condor, xlvi, 1944, 71 (Utah; one record).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 94 (California; res.; breeds).—Hill, Auk, lxi, 1944, 230, 231 (meas.; sex dimorphism).—Johnson, Condor, xlvii, 1945, 38, text (San Luis Obispo County, Calif.).—Davis, Auk, lxiii, 1946, 85 (captivity; display).—Rett, Condor, xlviii, 1946, 182, text (7 miles nw. of McKittrick, Kern County, Calif.; found dead).

Catharista californianus Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 4.

Catharista californiana Gray, Hand-list, i, 1869, 3, No. 17.

Gryphus californianus Bonaparte, Rev. Mag. Zool., vi, 1854, 530.

Pseudogryphus californianus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 338; Proc. U. S. Nat. Mus., iii, 1880, 9, 195; Bull. Nuttall Orn. Club, v, 1880, 82 (meas., etc.); Nom. North Amer. Birds, 1881, No. 453; Auk, ii, 1885, 167 (crit., meas., etc.); Man. North Amer. Birds, 1887, 220.—Farrow and Henshaw, Rep. Orn. Coll. Wheeler's Surv., 1874, 26, 49 (Beaver, Utah, 2 specs. seen Nov. 25).—Henshaw, Rep. Orn. Spec. Wheeler's Surv., 1876, 265 (habits; scarcity; range, etc.).—Belding, Proc. U. S. Nat. Mus., i, 1879, 437 (Yuba County, Calif.).—Brewster, Bull. Nuttall Orn. Club, viii, 1883, 31, in text (Cave Creek, Ariz., March 7, 1882).—Coues, Key North Amer. Birds, ed. 2, 1884, 558.—Gurney, List Diurn. Birds Prey, 1884, 3; Cat. Birds Prey, 1894, 17.—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 324, p. 125.—Townsend, Proc. U. S. Nat. Mus., x, 1887, 201 (se. Tehama County, Calif. about 1881 or 1882).—Bryant, Proc. California Acad. Sci., ser. 2, 1889, 278 (Lower California, sea level to 11,000 feet).—Rhoads, Proc. Acad. Sci. Philadelphia, 1892, 114 (one shot near summit of Mount Lemon, Santa Catalina Range, Ariz.); 1893, 39 (Lulu Island, Brit. Columbia, about 1889 or 1890; formerly common).—Anthony, Zoe, iv, 1893, 233 (Guadalupe Valley; 30 miles e. of Rosario; San Rafael Valley, and San Pedro Mártir Mountains, Lower California); Auk, xii, 1895, 137, in text (San Fernando, Lower California).—Fisher, North Amer. Fauna, No. 7, 1893, 33 (Frazier Mountain, near Tejon Ranch; near Walker Basin; Bakersfield; San Emigdio; Santa Ynez Mountains, head of Owens River, and above Lone Pine, Calif.).—

Lawrence, Auk, x, 1893, 300 (Rincon, and in Los Angeles and Ventura Counties, Calif.).—Stephens, Auk, xii, 1895, 81 (Walker Basin, Calif., large flock Oct. 10, 1894; habits).—Fannin, Auk, xiv, 1897, 89 (between Calgary and Rocky Mountains, Alberta, 2 specs. seen Sept. 10, 1896).—McLain, Auk, xv, 1898, 185 (Lampoc, Santa Barbara County, Calif.).—Brown, Auk, xvi, 1899, 272 (Grand Wash Cliffs, nw. Arizona, 1 pair, March 1881).—Sharpe, Hand-list, i, 1899, 241.—Van Denburgh, Proc. Amer. Philos. Soc., xxxviii, 1899, 159 (Los Gatos, Santa Clara County, Calif.; 2 specs.).—Grinnell, Pacific Coast Avif., No. 11, 1915, 62 (California range).—Swann, Synopt. List Accip., pt. 1, 1919, 3.—Groebbels, Der Vögel, i, 1932, 620 (body weight).—Willett, Pacific Coast Avif., No. 21, 1933, 39.—Harris, Condor, xliii, 1941, 46–49, 50–53, 55, in text (distr.; meas.; descr.; Arizona; California).

Oenops californiana Sharpe, Cat. Birds Brit. Mus., i, 1874, 28 (Monterey, Calif.)—Harris, Condor, xliii, 1941, 46, in text (distr.).

Rhinogryphus californianus Sharpe, Linn. Soc. London Journ. Zool., xiii, 1878, 24, map, 6 (geogr. range).—Beddard, Struct. and Classif. Birds, 1898, 473, in text.—Harris, Condor, xliii, 1941, 54, in text (hist.).

Gypagus Californianus Harris, Condor, xliii, 1941, 17, in text (hist.).

Pseudogryphus californicus Boucard, Travels of a Naturalist, 1894, 51 (California).

Gymnogyps californicus Swann, Synop. Accip., pt. 1, 1921, 5.

Sarcoramphos californica Hall, Murrelet, xv, 1934, 5, in text (Columbia River, Wash.; hist.; 1826 rec.).

Vultur columbianus Ord, *in* Guthrie's Geogr., 2d Amer. ed., ii, 1815, 315 (Columbia River).

Cathartes vulturinus Temminck, Planches Col., i, 1824, pl. 31 and text (descr., distr.).—Lesson, Man. d'Orn., ii, 1828, 10.—Harris, Condor, xliii, 1941, 17, 25 text (hist.).

Cathartes gryphus (not *Vultur gryphus* Linnaeus) Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 23; Contr. Maclurian Lyc., i, 1827, 9.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 35 (distr., plum., habits); ed. 2, 1840, 35 (distr., plum., habits).

Sarcoramphus gryphus Bonaparte, Geogr. and Comp. List., 1838, 1.—Harris, Condor, xliii, 1941, 47, in text (meas.).

Vultur Harpyia (var. *monstruosa*) Harris, Condor, xliii, 1941, 8, in text (California; first name used 1792).

Suborder Falcones: True Birds of Prey

>Accipitres Forster, Enchiridion, 1788, 33 (includes Striges and Laniidae!).

=Accipitres Seebohm, Classif. Birds. 1890, 16.—Beddard, Struct. and Classif. Birds, 1898, 472; Proc. Zool. Soc. London, 1903 (2), 157.—Pycraft, Proc. Zool. Soc. London, 1902, 318.—Oberholser, Outl. Classif. North Amer. Birds, 1905, 2.—Knowlton, Birds of the World, 1909, 49, 211.

<Accipitres Sharpe, Rev. Recent Att. Classif. Birds, 1891, 78 (excludes Pandionidae); Hand-list, i, 1899, 241 (excludes Pandionidae and Polioaëtus).—Swann, Synopt. List. Accip., pt. 1, 1919, 3 (excludes Pandionidae and Polioaëtus).

<Accipitrini Vieillot, Analyse, 1816, 22 (excludes Polyborinae and Aegypiinae).

=Falconidae Lesson, Écho du Monde Savant, 9e an., vi, sér. 2, No. 49, Dec. 25, 1842, 1151.—Kaup, *in* Jardine's Contr. Orn., 1850, 51.—Cassin, *in*

Baird, Rep. Pacific R. R. Surv., ix, 1858, 3, 7.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 103.—Garrod, Proc. Zool. Soc. London, 1874, 117.—Sclater, Ibis, 1880, 404.—Barrows, Stand. Nat. Hist., iv, 1884, 263, 273, in text.—Coues, Key North Amer. Birds, ed. 2, 1884, 519.

<Falconidae Bonaparte, Consp. Gen. Av., i, 1850, 12 (excludes Aegypiinae).—Kaup, *in* Jardine's Contr. Orn., 1850, 51 (excludes Aegypiinae).—Bonaparte, Rev. Mag. Zool., vi, 1854, 531 (excludes Aegypiinae).—Carus, Handb. Zool., i, 1868–75, 306 (excludes Aegypiinae).—Gray, Hand-list, i, 1869, v, 4 (excludes Aegypiinae).—Sclater and Salvin, Nom. Av. Neotr., 1873, vii, 118 (excludes Pandionidae and Aegypiinae).—Gurney, List Diurn. Birds Prey, 1884, xiii, 10 (excludes Aegypiinae).—Gadow, *in* Bronn's Thier-Reich, Vög., ii, 1891, 159, 300 (excludes Pandioninae and Aegypiinae); Classif. Vertebr., 1898, 33 (excludes Aegypiinae).—Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 78 (excludes Pandioninae and Aegypiinae).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1899, 41 (excludes Pandioninae and Aegypiinae).—Swann, Synopt. List Accip., pt. 1, 1919, 7 (excludes Aegypiinae, Pandioninae, and genus *Polioaetus!*).

=Gypaetidae Huxley, Proc. Zool. Soc. London, 1867, 464.

=Aëtomorphae Carus, Handb. Zool., i, 1868–75, 305.

=Falcones American Ornithologists' Union, Check-list, 1886, 154; ed. 3, 1910, 153; ed. 4, 1931, 62.—Wetmore, Proc. U. S. Nat. Mus., lxxvi, art. 24, 1930, 3.—Peters, Check-list Birds of World, i, 1931, 192.—Wetmore, Smiths. Misc. Coll., lxxxix, No. 13, 1934, 5; xcix, No. 4, 1940, 32; No. 7, 5.

=Gypo-Falconidae Fürbringer, Unters. Morph. Syst. Vög., ii, 1888, 1297, 1565, 1580.

=Vulturidae+Falconidae Gadow, Classif. and Struct. Vertebr., 1898, 33.

><Falconidae Sharpe, Cat. Birds Brit. Mus., i, 1874, ix, 30 (includes Cariamae and Sagittariidae!; excludes Pandionidae and *Polioaëtus!*).

<Falcones Sharpe, Cat. Birds Brit. Mus., i, 1874, ix, 1 (excludes Pandionidae and *Polioaëtus*).

=Falconi Maynard, Birds Eastern North Amer., 1881, 294.

Falconiform birds with the hallux incumbent and functional and much more than half as long as fourth toe; tarsometatarsus greatly flattened, with strong lateral ridges (the inner one produced and thin), its posterior face, on proximal end, with two ridges separated by a deep and wide groove; basipterygoid processes absent or rudimentary; femorocaudal muscle present, accessory femorocaudal muscle absent, the myological formula A+. Posterior, or ischioiliac, edge of os innominatum without any notch; external nares imperforate; olfactory chamber small; maxillopalatines spongy; hallux connected with the flexor longus hallucis; lower larynx present, provided with two pairs of intrinsic muscles; oil gland feathered; caeca present.

Those characters common to the Accipitres and Cathartae are as follows: Metasternum subtruncate; furcula entirely separated from keel of sternum; clavicle not ankylosed with sternum; acrocoracoid articulated with furcula. Besides the above the following characters, though not strictly diagnostic of the group, may be mentioned: Palate

directly or indirectly desmognathous or (in genus *Elanus*) schizognathous; cervical vertebrae 13 or 14 (15 in Pandionidae); dorsal vertebrae heterocoelous; coracoid grooves overlapping; procoracoid process large; metasternum entire or with one pair of notches or foramina (these sometimes developed on one side only); ischium not continued or produced backward as a spine;[32] flexor tendons of type III or (in Pandionidae) type XI; syrinx tracheobronchial; caeca minute (except in Pandionidae); cervical pterylosis with lateral apteria (except in Pandionidae);[32] aftershaft present; secondaries aquintocubital; rectrices 12–14; young nidicolous (altricial), ptilopaedic.

KEY TO THE FAMILIES OF FALCONES

a. Metasternum cuneate; furcula articulating with anteroinferior angle of sternum; clavicle ankylosed with sternum at symphysis by a strong median process; acrocoracoid without articular facets for furcula; postacetabular portion of ilium not deflected (nor with notch indicating the two elements posteriorly); basipterygoid processes present; functional; tarsometatarsus prismatic (its anteroposterior diameter equaling or exceeding the transverse), the posterior face with a prominent median process, terminated above by an expanded cordate surface; hallux less than half as long as fourth toe; femorocaudal muscle absent, accessory femorocaudal muscle present; myological formula BXY+----------**Sagittariidae**[33] (extralimital)

aa. Metasternum subtruncate; furcula entirely separated from keel of sternum; clavicle not ankylosed with sternum; acrocoracoid articulated with furcula; postacetabular portion of ilium deflected; basipterygoid processes absent or rudimentary; tarsometatarsus greatly flattened, with strong lateral ridges (the anterior one produced and thin, and the posterior face of the proximal end with two ridges, separated by a deep and wide groove) hallux much

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[32] These characters contrasting with those of Cathartae.

[33] **Sagittariidae.**—Gypogeranidae Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 4; Bonaparte, Saggio Distr. Anim. Vertebr., 1831, 36; Rev. Mag. Zool., 1850, 478; Consp. Gen. Av., i, 1850, 12; Kaup, *in* Jardine's Contr. Orn., 1849, 119; Huxley, Proc. Zool. Soc. London, 1867, 465; Carmus, Handb. Zool., i, 1868–75, 310; Barrows, Stand. Nat. Hist., iv, 1884, 263, 264, in text; Fürbringer, Unters. Morph. Syst. Vög., ii, 1888, 1294, 1565, 1580; Gadow, Classif. Vertebr., 1898, 33.—Serpentariidae Sclater, Ibis, 1880, 404; Gurney, Cat. Birds Prey, 1894, 16; Sclater, Birds South Africa, iii, 1903, 402; Reichenow, Die Vögel, i, 1913, 366.—Oestuchomorphae Carus, Handb. Zool., Wirbelth., i, 1868, 75, 310.—Serpentarii Seebohm, Classif. Birds, 1891, 78; Sharpe, Rev. Rec. Att. Classif. Birds, 1891, 78; Hand-list, i, 1899, xx, 241; Pycraft, Proc. Zool. Soc. London, 1902, 318, 319; Swann, Synopt. List Accip., pt. 1, 1919, 3.—Gypogerani Knowlton, Birds of the World, 1909, 48, 209.—Sagitariidae Sclater, Syst. Av. Ethiopicarum, pt. 1, 1924, 46; Swann, Monogr. Birds of Prey, i, pt. 2, 1925, 63; Bannerman, Birds Trop. West Africa, i, 1930, 165.—Sagittarinae Finsch and Hartlaub, Vög. Ost-Afr., *in* Von der Decken's Reise, iv, 1870, 93.—Sagittarioidea Peters, Check-list Birds of World, i, 1931, 192.

A very distinct and remarkable family comprising a single genus (*Sagittarius* Herman) represented by one species, peculiar to Africa. (An extinct species from the Lower Miocene of France.)

more than half as long as fourth toe; femorocaudal muscle present, accessory femorocaudal muscle absent; myological formula A+.

b. Palate indirectly desmognathous or (in genus *Elanus*) schizognathous; vomer not expanded anteriorly, not closely applied to maxillopalatines; lachrymal usually provided with a superciliary plate (absent in Pandionidae, Perninae, and Aegypiinae); antorbital plate (prefrontal) often much reduced, generally tongue-shaped, articulating or even fused by its free end with distal extremity of lachrymal; squamosal prominence not strongly developed; ventral surface of maxilla without median bony ridge; mandible without ramal vacuity; nasal bones very incompletely ossified, the nostril with a more or less oval or pyriform, usually large, opening, fully exposing the nasal septum, without central bony tubercle, or if slitlike, the lower end the posterior one, and if small and approximately circular without bony rim or central tubercle; procoracoid small, articulating with scapula only, and widely separated from clavicle; thoracic vertebrae all free; spina interna sterni absent; no gap between first and second bronchial semirings; egg shells with green translucence.

c. Tarsus very stout, covered with small, rough, somewhat imbricated projecting scales; under surface of toes covered with prominent spicules; the outer toe reversible; claws of all the toes long, very strongly curved, of equal length, and contracted and rounded on the under surface; lachrymal with no superciliary plate; coracoids overlapping at sternum; upper portion of tarsometatarsus with a bony ring, through which passes the common tendons of the toes; tendons of biceps split for nearly entire length; caeca large____**Pandionidae** (p. 523)

cc. Tarsus slender, covered with smooth scales; under surface of toes without spicules; the outer toe fixed; the claws graduated in size from that of the hallux (largest) to that of the outer (fourth) toe (smallest), not contracted to their under surface where (except in Elaninae) broadly grooved or concave (in transverse section); lachrymal usually with a superciliary plate (absent in Perninae and Aegypiinae); coracoids not overlapping at sternum; upper portion of tarsometatarsus without bony ring; caeca small; tendons of biceps not split.
Accipitridae (p. 63)

bb. Palate directly desmognathous; vomer expanded anteriorly, closely applied to maxillopalatine process; lachrymal without superciliary plate; antorbital plate (prefrontal) largely developed, the outer border closely applied to or fusing with the lachrymal; squamosal prominence strongly developed; ventral surface of maxilla with a median bony ridge; mandible with ramal vacuity; nasal bones almost completely ossified, the nostril with a very small circular or slitlike aperture with a conspicuous central bony tubercle or else (in genus *Micrastur*) large, broadly oval and without any long rim or obvious central tubercle; procoracoid large, articulating with the clavicle; thoracic vertebrae (except the penultimate) ankylosed (except in *Herpetotheres*); spina interna sterni well developed; a prominent oval gap between first and second bronchial semirings; egg shells with reddish yellow translucence.
Falconidae (p. 543)

Family ACCIPITRIDAE: Hawks, Eagles, Kites, Harriers, and Old World Vultures

<Accipitrinae Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 139, 141; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 104, 106.

><Accipitrinae Sharpe, Cat. Birds Brit. Mus., i, 1874, ix, 46 (*Polyboroides, Circus, Micrastur, Geranospizias, Urotriorchis, Parabuteo, Melierax, Astur, Accipiter,* and *Nisoides*); Hand-list, i, 1899, xx, 244 (same genera).—Swann, Synopt. List. Accip., pt. 2, 1919, 10 (same genera).—Reichenow, Die Vögel, i, 1913, 368 (includes Polyborinae; omits *Ictinia*).

=Accipitrinae American Ornithologists' Union, Check-list, 1886, 184.—Ridgway, Man. North Amer. Birds, 1887, 222, in text; Orn. Illinois, i, 1889, 426, 441.

<Accipitridae Maynard, Birds Eastern North Amer., 1881 (Jan. 26, 1880 [34]), 302 (includes *Astur* and *Accipiter* only).

=Accipitridae Oberholser, Auk, xxxvi, 1919, 569, text.—Wetmore and Miller, Auk, xliii, 1926, 342.—Wetmore, Proc. U. S. Nat. Mus., lxxvi, art. 24, 1930, 3; Smiths. Misc. Coll., lxxxix, No. 13, 1934, 5; xcix, No. 4, 1940, 32; No. 7, 5.—Peters, Check-list Birds World, i, 1931, 192.

=Accipitriidae American Ornithologists' Union, Check-list, ed. 4, 1931, 62.

=Buteoninae Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 32; U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. No. 4, 1875, 4; No. 6, 1876, 451.

<Buteoninae Sharpe, Cat. Birds Brit. Mus., i, 1874, x, 158 ("*Urospizias*"= *Erythrotriorchis, Heterospizias, Tachytriorchis, Geranoaëtus, Buteo, Archibuteo, Buteola, Asturina, Rupornis, Busarellus, Buteogallus, Urubitinga, Leucopternis, Harpyhaliaëtus, Morphnus,* and *Thrasaëtus*); Hand-list, i, 1899, xx, 250 (same genera with *Harpyopsis* added).—Swann, Synopt. List Accip., pt. 2, 1919, 39 (same with *Megatriorchis* added).

<Buteonidae Maynard, Birds Eastern North Amer., 1881 (April 16, 1880), 308 (excludes *Astur, Accipiter,* "Milvidae," *Haliaeëtus,* and *Aquila*).

=Buteonidae Pycraft, Proc. Zool. Soc. London, 1902, 318.—Oberholser, Outl. Classif. North Amer. Birds, 1902, 2.—Knowlton, Birds of the World, 1909, 49, 226.—American Ornithologists' Union, Check-list, ed. 3, 1910, 153.

<Aquilidae Maynard, Birds Eastern North Amer., 1881 (Apr. 16, 1880), 318 (for *Aquila* only).

=Craxireginae Poche, Zool. Anz., xxvii, 1904, 503.

><Aquilinae Sharpe, Cat. Birds Brit. Mus., i, 1874, xi, 225 (*Gypaetus, Uroaëtus, Aquila, Nisaetus, Lophotriorchis, Neopus, Spiziastur, Spizaëtus, Lophaëtus, Asturinula, Herpetotheres!; Dryotriorchis, Circaëtus, Spilornis, Butastur, Helotarsus, Haliaeetus, Thalassaëtus, Haliastur, Gypohierax, Elanoides, Nauclerus, Milvus, Lophoictinia, Rostrhamus, Odontriorchis, Chondrohierax, Gypoictinia, Elanus, Gampsonyx, Henicopernis, Machaerirhamphus* and *Pernis*); Hand-list, i, 1899, xxi, 260 (same genera with *Gypaëtos* omitted and *Pithceophaga, Entriorchis, Baza, Aviceda,* and all true Falconidae added!).—Swann, Synopt. List Accip., pt. 2, 1919, 63 (same genera except *Baza* and *Aviceda* and Falconidae excluded).

<Milvinae Swann, Synopt. List Accip., pt. 3, 1920, 94 (*Elanoides, Nauclerus, Milvus, Lophoictinia, Rostrhamus, Chrondrohierax, Odontriorchis, Gypoictinia, Elanus, Gampsonyx, Ictinia, Harpagus, Baza, Aviceda, Henicopernis, Machaerirhamphus,* and *Pernis*).

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[34] The date when the signature containing the page cited was received.

<Milvidae Maynard, Birds Eastern North Amer., 1881 (Jan. 26, 1880), 281 (includes *Circus, Rostrhamus, Elanoides, Ictinia,* and *Elanus*).

<Haliaetidae Maynard, Birds Eastern North Amer., 1881 (April 16, 1880), 320 (for *Haliaeetus* only).

><Falconidae Swann, Monogr. Birds Prey, i, 1925 (includes Polyborinae and Falconinae, leaves out Elaninae and Aegypiinae; also contains Accipitrinae, Buteoninae, Gypaetinae, Aquilinae, Milvinae, and Pandionidae).—Boetticher, Verh. Orn. Ges. Bay., xvii, 1927, 538 (includes Falconinae).

Nonfalconine Accipitres with coracoids not overlapping at sternum; upper portion of anterior face of tarsometatarsus without bony ring; outer (fourth) toe not reversible, claws graduated in size, from that of the hallux (largest) to that of outer (fourth) toe (smallest), not contracted to their under surface where (except in subfamily Elaninae) broadly grooved or concave (in transverse section); deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; cervical vertebrae 13 or 14; caeca minute; contour feathers with aftershafts.

Palate indirectly desmognathus or rarely (in Elaninae) schizognathous; vomer not expanded anteriorly, not closely applied to the palatines; lachrymal usually with an accessory superciliary plate; antorbital plate (prefrontal) often much reduced, generally tongue shaped, articulating or even fused by its free end with distal extremity of lachrymal; squamal prominence not strongly developed; ventral surface of maxilla without median bony ridge; mandible without ramal vacuity; nasal bones very incompletely ossified, the nostril with a more-or-less oval or pyriform, usually large, external opening, fully exposing the nasal septum, and without any bony (though sometimes with a cartilaginous) central tubercle, or if slitlike the lower end the posterior one, or if small and more or less circular without bony rim or tubercle; procoracoid small, articulating with scapula only and widely separated from clavicle; thoracic vertebrae all free; spina interna sterni absent; syrinx tracheobronchial; no gap between first and second bronchial semirings; eggshells with green translucence.

The Accipitridae, as here defined, includes all the diurnal Falcones except the Sagittariidae, the Falconidae, and the Pandionidae. It is a very extensive group and constitutes a decidedly heterogeneous assemblage, the modifications of form exhibited by the 70 or more genera (represented by more than 200 species) being so great and various that it is exceedingly difficult to define the group without recourse to anatomical characters. Indeed, probably no existing family of birds presents greater extremes of size or external form; and, in a limited fauna, the gap between the gigantic, filthy vultures and comparatively minute members of the genus *Accipiter*, the heavy, comparatively sluggish hen hawk (*Buteo*) and the light and graceful

swallowlike kites (genera *Elanoides*, etc.), or between the short-legged strictly insessorial types and such long-legged forms as *Geranospizias* seems a very wide one indeed, but when the forms of other faunas are examined, it is found that these apparent gaps are so nearly bridged that the subdivision of the family into trenchantly defined minor groups presents real difficulty.

SUPERFICIAL KEY TO THE AMERICAN SUBFAMILIES OF ACCIPITRIDAE

a. Claws not grooved beneath, but smoothly flattened or even rounded. **Elaninae** (p. 67)

aa. Claws grooved beneath.

b. Sides of head very densely feathered close up to the eyelids; the eyes not overhung by a naked superciliary shield formed by the projecting edge of the superciliary process of the lachrymal---------- **Perninae** (p. 80)

bb. Sides of head in proximity to the eyes less densely feathered; the eyes overhung by a naked superciliary shield.

c. Feathers of the face forming a distinct ruff---------- **Circinae** (p. 498)

cc. Feathers of face not forming a ruff.

d. Basal joint of second toe permanently ankylosed with the joint next beyond it; size moderate, never very large----- **Milvinae** (p. 113)

dd. Basal joint of second toe not ankylosed with the joint next beyond it, or, if so ankylosed (*Haliaetus*) size very large.

e. Tail nearly as long as wing---------- **Accipitrinae** (p. 140)

ee. Tail much shorter than wing---------- **Buteoninae** (p. 210)

KEY TO THE NORTH AND MIDDLE AMERICAN GENERA OF ACCIPITRIDAE

a. Claws not grooved beneath but smoothly flattened or even rounded.

b. Size small, wings under 170 mm---------- **Gampsonyx** (p. 76)

bb. Size larger, wings usually over 300 mm---------- **Elanus** (p. 69)

aa. Claws grooved beneath.

b. Sides of the head very densely feathered close up to the eyelids; the eyes not overhung by a naked superciliary "shield" formed by the projecting edge of the superciliary process.

c. Tail excessively forked, about as long as the long and narrow wing; cere not tumid, the nostril broadly ovate, without overhanging membrane. **Elanoides** (p. 82)

cc. Tail truncate or rounded, much shorter than the rather short and very broad wing; cere tumid, the nostril slitlike, overhung by a soft membrane.

d. Bill greatly hooked and much compressed; feathers of pileum soft and blended, without tendency to greater elongation on the occiput; lores naked, crossed by a narrow line of minute bristlelike feathers from anterior angle of eye to forehead----- **Chondrohierax** (p. 100)

dd. Bill only moderately hooked and not greatly compressed; feathers of pileum firm, distinctly defined, with tendency to elogation on the occiput, where forming a more or less distinct narrow, pointed crest; lores more or less densely feathered---------- **Leptodon** (p. 93)

bb. Sides of the head in proximity to the eyes less densely feathered; the eyes overhung by a naked superciliary shield.

c. Size very large; wing over 500 mm. in length.[35]

d. Tarsus densely feathered, all around, down to base of toes. **Aquila** (p. 452)

dd. Tarsus naked, all around, for lower third or more.

e. Wing much rounded (fifth to seventh primaries longest, the first shortest), the secondaries very large and broad, reaching nearly to tips of primaries; tail nearly as long as wing; occiput conspicuously crested; feet enormously developed---**Harpia** (p. 430)

ee. Wing pointed (third to fifth primary longest, the first longer than ninth), the secondaries only moderately developed, their ends falling far short of tips of primaries; tail not more than two-thirds as long as wing; occiput not crested; feet moderately developed.

f. Tail with 12 rectrices----------**Haliaeetus** (p. 472)

ff. Tail with 14 rectrices----------**Thallasoaëtus** (p. 467)

cc. Size small to moderately large; wing under 500 mm. in length.

d. Maxilla sickle-shaped, slender; claw of middle toe with its inner edge produced and (if not worn away) pectinated.

e. Longest primary exceeding distal secondary by two-fifths the length of wing; tarsus only one-seventh as long as wing and less than two-thirds as long as tail; tail nearly half as long as wing; its tip emarginate----------**Rostrhamus** (p. 130)

ee. Longest primary exceeding distal secondary by less than one-third the length of wing; tarsus more than one-sixth as long as wing and more than half as long as tail; tail only two-fifths as long as wing, its tip truncate----------**Helicolestes** (extralimital) [36]

dd. Maxilla not sickle-shaped, not slender; claw of middle toe not produced or pectinated on its inner edge.

e. Face encircled by a ruff of short, stiffened compact feathers, as in the owls----------**Circus** (p. 498)

ee. Face not encircled by a ruff.

f. Tail relatively very long, at least two-thirds the length of the wing.

g. Tail almost as long as wing (85 percent)---**Morphnus** (p. 421)

gg. Tail less than 85 percent as long as wing.

h. Maxillary tomium doubly toothed-------**Harpagus** (p. 114)

hh. Maxillary tomium smooth or sinuated, but not toothed.

i. Tarsus completely feathered to the toes.

j. Five outermost primaries incised on their inner webs; the distal portions of the feathers lying straight. **Spizastur** (p. 437)

jj. Six outermost primaries incised on their inner webs; the distal portions of the feathers "bowed" or bent inward. **Spizaetus** (p. 441)

ii. Tarsus naked for the lower two-thirds of its length.

j. Toes relatively very short, the middle toe without claw less than half the length of the tarsus. **Geranospiza** (p. 516)

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[35] Some specimens of *Morphnus* and *Urubitornis* have wings 500 mm. or more in length, but the majority are under 500 mm. Also the southern South American race of *Buteo melanoleucus*, a wholly extralimital form, has wings over 500 mm. long.

[36] *Helicolestes* Bangs and Penard, Bull. Mus. Comp. Zool., lxii, April, 1918, 38 (type, by original designation, *Falco hamatus* Illiger).

jj. Toes relatively longer; the middle toe without claw much more than half the length of the tarsus.

k. Depth of bill at base not less than chord of culmen; middle toe without claw equal to or longer than naked portion of tarsus in front; lores densely feathered ---------- **Accipiter** (p. 141)

kk. Depth of bill at base decidedly less than chord of culmen; middle toe much shorter than naked portion of tarsus in front; lores nearly naked.. **Parabuteo** (p. 368)

ff. Tail less than two-thirds the length of the wing.

g. Acrotarsium covered for the greater part with small, rough, hexagonal scales; about 6–8 large, broad transverse scutellae on the middle portion ---------- **Urubitornis** (p. 415)

gg. Acrotarsial scutellae all (where present) of the large transverse type.

h. Lores, entirely or nearly naked, devoid of (or with only few) bristles ---------- **Buteogallus** (p. 396)

hh. Lores more or less covered with bristly feathers.

i. Tarsus very short, less than twice the length of the bill. **Ictinia** (p. 118)

ii. Tarsus more than twice the length of the bill.

j. Middle toe without claw less than half length of tarsus. **Heterospizias** (p. 204)

jj. Middle toe without claw more than half the length of tarsus.

k. The five outermost primaries definitely emarginated on their inner webs ---------- **Busarellus** (p. 409)

kk. The three or four outermost primaries emarginated on their inner webs; sometimes fifth one sinuated or faintly emarginated.

l. Fifth primary sinuated on its inner web.

m. Longest primary exceeding distal secondary by nearly one-third to more than one-third length of wing.

Buteo, part (subgenus *Geranoaetus*, extralimited

mm. Longest primary exceeding distal secondary by much less than one-third length of wing.

n. Maxillary tomium bluntly toothed. **Hypomorphnus** (p. 388)

nn. Maxillary tomium not bluntly toothed but slightly, if at all, sinuated. **Leucopternis** (p. 376)

ll. Fifth primary not sinuated at all ---- **Buteo** (p. 211)

Subfamily Elaninae: White-tailed Kites

<Elani Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 53 (excludes *Chelictinia*).

=Elani Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. No. 2, 1876, 150.

>Elaninae Shufeldt, Ibis, 1891, 232 (*Elanus* only).—Peters, Check-list Birds of World, i, 1931, 192 (excludes *Gampsonyx*).

=Elaninae Pycraft, Proc. Zool. Soc. London, 1902, 315.—Wetmore and Miller, Auk, xliii, 1926, 342.—Wetmore, Smiths. Misc. Coll., lxxxiv, No. 13, 1934, 33.

<Polihieracinae PETERS, Check-list Birds of World, i, 1931, 281 (includes *Gampsonyx*).

This subfamily is represented in North and Middle America by two genera, *Elanus* and *Gampsonyx*. The subfamily is characterized by having a schizognathous type of palate; the lachrymal with a double superciliary plate; coracoids not overlapping at sternum; upper portion of anterior face of tarsometatarsus with no bony ring; outer (fourth) toe not reversible; claws graduated in size from that of the hallux (largest) to that of the outer (fourth) toe (smallest), not contracted to their under surface, but smoothly flattened or even rounded; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; cervical vertebrae 13 or 14; caeca minute; not more than two (sometimes none) of outer primaries with inner web sinuated; tarsus and basal portion of toes covered uniformly with very small roundish or hexagonal scales, only the terminal portion of the toes having transverse scutella; outer toe somewhat shorter than the inner toe; nostril broadly ovate, nearly horizontal, situated near middle of cere.

It contains, besides *Elanus* and *Gampsonyx*, two other genera, *Machaerhamphus*[37] and *Chelictinia*.[38] The former has the culmen exceedingly compressed, forming a distinct vertical ridge, and the tarsus exceeding the length of the middle toe without the claw by at least 10 mm. *Chelictinia* is like *Elanus* in not having the culmen compressed and in having the tarsus less than 10 mm. longer than the middle toe, but it has the tail deeply emarginate.

Chelictinia is a monotypic genus, confined to Africa. As the single species (*C. riocouri*) is a rare bird in collections, a full diagnosis of the genus may not be out of place here.

Bill much as in *Ictinia*, but less robust; nostril unusually large, oval, obliquely vertical; cere very narrow and compressed on top; tarsus considerably longer than middle toe (without claw); web between outer and middle toes just appreciable; tarsus and toes

[37] *Machaerhamphus* Westerman, Bijdr. tot de Dierk., i, 1848, 29, pl. 12 (type, by monotypy, *Machaerhamphus alcinus* Westerman). A highly peculiar genus of crepuscular, bat-eating hawks found in Africa, Madagascar, southeastern Asia to New Guinea. Cf. Stuart Baker, Fauna Brit. India, Birds, ed. 2, v, 1928, 169–170; Bannerman, Birds Trop. West Africa, i, 1930, 233–235; Chapin, Bull. Amer. Mus. Nat. Hist., lxv, 1932, 545.

[38] *Chelictinia* Lesson, Écho du Monde Savant, x, 1843, col. 63 (type by monotypy, *Elanoides riocourii* Vieillot); *Nauclerus* Vigors, Zool. Journ. ii, 1825, 386 (type, as designated by Stephens, 1826, *Falco riocour* "Vieill." Temminck).—*Chelidopteryx* Kaup, Classif. Saugeth. und Vögel, 1844, 112 (type, by monotypy, *Elanoides riocouri* Vieillot).—*Cypselopteryx* Kaup, Archiv für Naturg. 1850, i, 31 (new name for *Chelidopteryx* Kaup).—*Elanopterus* Antinori, Cat. Descr. Coll. Ucc. Africa, 1864, xi (lapsus for either *Chelidopteryx* or *Cypselopteryx;* used for *Chelictinia riocouri*).

covered uniformly with rough or granular small hexagonal or quadrate scales, only the terminal phalanges with transverse scutellae; claws rounded beneath; wing very long and narrow, swallowlike, the outermost primary longest and none of the primaries sinuated on inner web; tail ternlike, nearly as long as wing, forked for about half its length, the lateral rectrices much attenuated; coloration, bluish gray above, white beneath; size rather small.

Genus ELANUS Savigny

Elanus Savigny, Descr. Égypte, Hist. Nat., i, 1809, 69, 97. (Type, by monotypy *E. caesius* Savigny = *Falco melanopterus* Daudin.)
Aëlanus (emendation) Rüppell, Neue Wirbelth., Vögel, 1839–40, 115.
Milans Boie, Isis, x, Heft 5, 1822, 549 (unintentional emendation of *Milvus*).

Medium-sized kitelike hawks (wing about 270 to 342 mm.) with claws smooth and rounded underneath, tail much less than three-fifths as long as wing, and adults with entire lower parts immaculate white, the upperparts plain bluish gray with lesser wing coverts black.

Bill relatively small, compressed anteriorly but rapidly widening from anterior margin of cere, its width at edge of frontal feathering more than double that at anterior margin of cere; culmen very nearly as long as or sometimes a little longer than claw of hallux, regularly and strongly decurved, the tip of maxilla (unguis) well produced; gonys about one-third as long as culmen, faintly convex, not prominent basally, very indistinctly if at all ridged; maxillary tomium nearly straight; gape very wide and long, the rictus beneath middle of eyes; cere strongly sinuated, very convex in front of nostril, receding and faintly concave below; nostril relatively large, longitudinally oval or elliptical-oval. Wing very long and pointed, the longest primary exceeding distal secondary by decidedly less, to a little more, than half the length of wing; second primary or second and third primaries longest, the first (outermost) equal to or longer than fourth; one or two outer primaries with distal part of inner web shallowly emarginated; tips of longer primaries obtuse or rounded. Tail much less, to decidedly more, than half as long as wing, its tip double-round (the lateral rectrices sometimes longer, sometimes shorter than middle pair). Tarsus as long as or slightly longer than middle toe with claw, about as long as distance from tip of maxilla to middle of eye, relatively stout, the upper half or more feathered in front and on sides, elsewhere covered with minute roundish, rather indistinct scales, as are also the first and second phalanges of the toes; outer and inner toes equal in length or (sometimes) the outer slightly shorter than the inner, extending to about middle of third phalanx of middle toe; claws moderate in size and curvature, graduated in size (but that of

hallux decidedly less than twice as long as that of outer toe) their under surface smooth and rounded; a very slight web between basal phalanges of outer and middle toes.[39]

Plumage and coloration.—Plumage soft and blended, but feathers of "mantle" distinctly outlined. Adults with underparts wholly immaculate white, the under wing coverts, however, sometimes with a patch of black; upperparts bluish gray, paler on head and tail, the lesser wing coverts black. Young similar to adults but more or less tinged or suffused with rusty, the tail with a more or less distinct terminal band of dusky.

Range.—Occurs throughout most of the world from southern United States, southern Europe and Asia south of the Himalayas, to all South America, Africa, and Australia. Four species with several races, only one of which occurs in our limits.

KEY TO THE SPECIES AND SUBSPECIES OF ELANUS[40]

a. Axillars and a broad band across the under wing coverts black.
E. scriptus[41] (extralimital)

aa. Axillars white.

b. Under wing coverts pure white with no black patch.
E. caeruleus[42] (extralimital)

bb. Under wing coverts white with a distinct patch of black near outer margin of wing.

c. Greater under wing coverts, other than the black ones, dark ashy gray like under surface of remiges---------- **E. notatus**[43] (extralimital)

cc. Greater under wing coverts, other than the black ones, whitish tinged with pale gull gray, distinctly lighter than under surface of remiges.

d. Tail under 175 mm---------- **E. leucurus leucurus**[44] (extralimital)

dd. Tail usually 175 mm. or longer (southern United States to Guatemala).
E. leucurus majusculus (p. 71)

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[39] Pterylographical characters, according to Nitzsch (Pterylographia) are as follows: "Remiges 25. Gular portion of the inferior tract very narrow, its inner branch remarkably long. Outer branch of the pectoral stem connected for three-fourths its length with the main stem, and then separated very perceptibly from it. Dorsal portion of the spinal tract not reaching the fork of the scapular portion, though two rows of single feathers which run parallel to it attain the fork. Immediately outside these rows, commence two elliptical (inguinal) powder-down tracts, pointed behind; these reach the lumbar tracts, which consist of only one row of small feathers."

Elanus is said to have one pair of inguinal powder-down patches.

[40] This key is based on adults only in the absence of adequate young material, but from what I have seen it probably will work for young birds as well.

[41] **Elanus scriptus** Gould, Proc. Zool. Soc. London, 1842, 80 (s. Australia).

[42] **Elanus caeruleus** Desfontaines, Hist. (Mem.) Acad. Paris, 1787 (1789), 503, pl. 15 (Algiers).

[43] **Elanus notatus** Gould, Syn. Birds Australia, pt. 4, 1838, app., i (New South Wales).

[44] **Elanus leucurus leucurus** (Vieillot).=*Milvus leucurus* Vieillot, Nouv. Dict. Hist. Nat., xx, 1818, 563 (wrongly printed as 556) (Paraguay).

ELANUS LEUCURUS MAJUSCULUS Bangs and Penard

North American White-tailed Kite

Adult (sexes alike).—Upper surface light neutral gray to deep gull gray, becoming gradually white on the anterior portion of the crown and the forehead; sides of head white, a semicircle of black feathers immediately anterior to the eye and continuing to the angle of the mouth and as a narrow black rim around the eyes; chin, throat, and rest of underparts pure white, the axillars and lesser under wing coverts white, the outer median coverts black and the greater coverts light gull gray; wings, above, deep slate gray to dark gull gray, the lesser upper wing coverts black, forming a distinct "shoulder" patch; middle pair of rectrices light neutral gray, the shafts yellowish brown (in dry skins); the rest of the tail white more or less washed with light gull gray; the two outermost primaries emarginated on the inner web; the second primary usually the longest, third scarcely shorter (sometimes equal or even longer in a few cases); the first longer than, or equal to the fourth; tail double-rounded, the longest feather (next to the outermost) about 10 mm. longer than the middle ones and 19 mm. longer than the outermost ones, which are the shortest; cere chamois to cream buff, bill black; iris orange-rufous; tarsi and toes dull buffy-yellow, claws black.

Natal down.—Dull white, tinged with pinkish buff on the crown and back; older birds said to have "bluish down."

Adult (sexes alike).—Wing 302–328 (314); tail 174–186 (181.6); culmen from cere 18–19 (18.7); tarsus 36–39 (37.8); middle toe without claw 27–32 (29.6 mm.).[45]

Immature.—Similar to adult, but the remiges and their greater median and distal lesser upper coverts tipped with white; interscapulars deep gull gray washed with bister; nape, occiput, crown, forehead, cheeks, and auriculars white heavily streaked with bister, the streaks becoming broader posteriorly where there is but little white; tail as in adult but all the feathers with obscure dusky subterminal bands, the bands continuing proximally along the edges of the feathers for a short distance; underparts white with tawny-olive to cinnamon-buff streaks on the chin, throat, breast, and upper abdomen; under wing coverts as in adults except that the greater row are tipped with white.

Range.—Peninsular Florida, where now very rare, Oklahoma (one record, Fort Arbuckle, breeding), southeastern Texas (Rio Grande City and Brownsville, to Victoria and Lee Counties), and California (west of the desert, from the upper Sacramento Valley and Humboldt

[45] Fourteen specimens. It is rather remarkable that there should be no sexual difference in size in this species since Mathews, Birds Australia, v, 1916, 200 and 208, finds females to be larger than males in *Elanus notatus* and *E. scriptus*.

County south to the San Diego area and to northern Baja California (rarely)), south through Mexico (Matamoros; Tampico, Tamaulipas; Jalapa, Orizaba, and Mirador, Veraruz) and occasionally to Guatemala and British Honduras (migrant?); casual in South Carolina, Alabama, Mississippi, Louisiana, Oklahoma, southern Illinois, and Oregon; accidental in Massachusetts.

Type locality.—San Rafael, Calif.

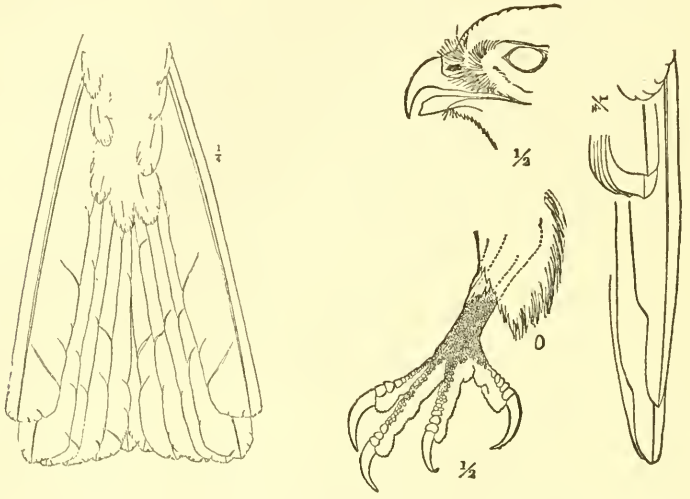

FIGURE 5.—*Elanus leucurus.*

Falco melanopterus (not of Daudin, 1800) BONAPARTE, Journ. Acad. Nat. Sci. Philadelphia, v, pt. 1, 1815, 28 (Florida; crit.); Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1828, 435.

Falco dispar (not of Temminck, 1825) BONAPARTE, Ann. Lyc. Nat. Hist. New York, ii, 1828, 435; Amer. Orn., ii, 1828, 18, pl. 11, fig. 1.—AUDUBON, Orn. Biogr., iv, 1838, 367; Birds Amer., pl. "351," i. e., 352.—NUTTALL, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 95.

Elanus dispar AUDUBON, Synopsis, 1839, 13; Birds Amer., 8vo ed., i, 1840, 70, pl. xvi.—NUTTALL, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 95.—HEERMANN, Journ. Acad. Nat. Sci. Philadelphia, ii, 1853, 260 (California).

Elanus leucurus BONAPARTE, Geogr. and Comp. List, 1838, 4; Consp. Gen. Av., i, 1850, 22, part; Rev. Mag. Zool., vi, 1854, 534, part.—GAMBEL, Proc. Acad. Nat. Sci. Philadelphia, 1846, 46 (California; habits); Journ. Acad. Nat. Sci. Philadelphia, 1847, 27 (California).—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 453 (s. North America); vii, 1855, 283 (San Francisco, Calif.); Illustr. Birds California, Texas, etc., 1854, 106; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 37 (San Francisco, Santa Clara, and Tulare Valley, Calif.); Proc. Acad. Nat. Sci. Philadelphia, 1862, 313 (San Francisco).—BREWER, North Amer. Oöl., i, 1857, 40.—HEERMANN, Rep. Pacific R. R. Surv., vii, 1857, 31 (California); x, pt. 4, No. 2, 1859, 33 (Suisun, Napa, and Sacramento Valleys, and mountains between Elizabeth Lake and

Williamsons Pass, Calif.).—Sclater, Proc. Zool. Soc. London, 1857, 201 (Jalapa, Vera Cruz).—Baird, Cat. North Amer. Birds, 1859, No. 35.—Sclater and Salvin, Ibis, 1859, 220 (Guatemala); Nom. Av. Neotr., 1873, 121, part (Mexico; Guatemala).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 149 (California).—Coues, Proc. Acad. Nat. Sci. Philadelphia, xviii, 1866, 48 (Fort Whipple, Ariz.); Key North Amer. Birds, 1872, 211; Check List North Amer. Birds, 1873, No. 336.—Gray, Hand-list, i, 1869, 28, No. 263, part.—Cooper, Orn. California, Land Birds, 1870, 488.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144; Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Wabash County, Ill., July 1865); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 198, part (s. United States); Proc. Boston Soc. Nat. Hist., xvi, 1874, 26, 327 (Wabash County, Ill., 1 pair, July [1875]); Orn. 40th Parallel, 1877, 592 (San Francisco, Calif.); Man. North Amer. Birds, 1887, 225; Orn. Illinois, i, 1889, 446 (Mt. Carmel, Ill., 1862 or 1863).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 339, part (California); Hand-list, i, 1899, 270, part.—Nelson, Bull. Essex Inst., viii, 1876, 151 (Wabash County, ne. Illinois); ix, 1877, 46 (Mt. Carmel, s. Illinois, 1 pr.).—Belding, Proc. U. S. Nat. Mus., i, 1879, 435 (Stockton and Marysville, Calif.).—Gurney, List Diurn. Birds Prey, 1884, 84, part; Cat. Birds Prey, 1894, 26, part.—American Ornithologists' Union, Check-list, 1886, No. 328; ed. 2, 1895, 126; ed. 3, 1910, 154.—Lloyd, Auk, iv, 1887, 188 (Tom Green and Concho Counties, Tex., rare fall vis.).—Townsend, Proc. U. S. Nat. Mus., x, 1887, 201 (Red Bluff, n. California).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Bryant, Proc. California Acad. Sci., ser. 2, 1889, 278 (Cape Colnett, Lower California, late fall).—Chapman, Bull. Amer. Mus. Nat. Hist., iii, 1889, 322 (mouth of Nueces River, Tex.).—Attwater, Auk, ix, 1892, 233 (San Antonio, Texas, rare fall and winter vis.).—Bendire, Life Hist. North Amer. Birds, i, 1892, pl. 5, figs. 3, 4.—Scott, Auk, ix, 1892, 212 (Caloosahatchie River, Fla., breeding, rare).—Fisher, Hawks and Owls United States, 1893, 23; North Amer. Fauna, No. 7, 1893, 34 (San Luis Obispo, Calif.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7–8, 1894, 224 (Veracruz, Mexico).—Anthony, Auk, xii, 1895, 137 (San Fernando, Lower California, June 12).—Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 1895, 478 (Haywood and Lauderdale Counties, Tenn.).—Barlow, Auk, xiv, 1897, 14–21 (nesting habits in California).—Beyer, Proc. Louisiana Soc. Nat. for 1897–98 (1900), 98 (off Kenner, La., 1 spec., Oct. 11, 1890; only known record for Louisiana).—McGregor, Pacific Coast Avif. No. 2, 1901, 6 (Santa Cruz, Calif.; rare; eggs).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1901, 97, part (Jalapa, Orizaba, and Mirador, Vera Cruz; Guatemala; s. United States).—Bailey, Handbook Birds Western United States, 1902, 148 (descr.; distr.).—Grinnell, Pacific Coast Avif., No. 3, 1902, 31 (California; fairly common permanent res. of Upper Sonoran Valley, w. of Sierras); No. 8, 1912, 10 (California; listed); No. 11, 1915, 63 (formerly common res. w. of Sierra Nevada, now greatly reduced in numbers and restricted in range and in danger of extirpation; Red Bluff, Tehama County; Forestville, Sonoma County; s. to Alamitos, Los Angeles County, and San Diego).—Widmann, Auk, xxi, 1904, 68 (Yosemite Valley, May); Birds Missouri, 1907, 89 (no definite record).—Beyer, Allison, and Kopman, Auk, xxv, 1908, 441 (near Kenner, La., 1 spec., Oct. 11, 1890).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 453 (Mt. Carmel, Ill.).—Fay, Auk, xxvii, 1910, 453 (Marthas Vineyard, Mass., May 30, 1910).—Wayne, Birds South Carolina, 1910, 70 (not now found in South Carolina).—Wil-

LETT, Pacific Coast Avif., No. 7, 1912, 45 (now rare, in s. California; breeding near Santa Barbara in 1886; Santa Clara Valley, early '80's; Alamitos, Los Angeles County, 1896; near National City, 1870; San Diego up to 1892); No. 21, 1933, 39.—REICHENOW, Die Vögel, i, 1913, 403.—TYLER, Pacific Coast Avif., No. 9, 1913, 39 (Fresno, Calif.; 2 records near Laton and near Palo Alto).—PEARSON, BRIMLEY, and BRIMLEY, Birds North Carolina, 1919, 163, in text (North Carolina; mentioned).—OBERHOLSER, Auk, xxxviii, 1921, 266 (nomencl., crit.).—VAN ROSSEM, Condor, xxv, 1923, 140 (near Victorville, San Bernardino County, Calif., Sept. 17, 1922).—GRINNELL and STORER, Animal Life in Yosemite, 1924, 281 (descr., distr., habits; Yosemite).—NICE and NICE, Birds Oklahoma, 1924, 40 (genl., Oklahoma).—BAILEY, Birds Florida, 1925, i, 67, pl. 36 (fig., distr., Florida).—MILLER, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington, Contr. 349, 1925, 94 (bones, Rancho La Brea); Condor, xxviii, 1926, 172, text (food); xxxix, 1937, 220, text (skel.).—WYMAN and BURNELL, Field Book Birds Southwestern United States, 1925, 96 (descr.; chars.).—CLAY, Condor, xxviii, 1926, 98, text (Miranda, Humboldt County, Calif.).—FORBUSH, Birds Massachusetts and Other New England States, ii, 1927, 98 (occurrence in New England).—SCHÜZ, Journ. für Orn., lxxv, 1927, 99, text (powder downs).—DEGROOT, Condor, xxx, 1928, 361, text (eggs).—RAY, Condor, xxx, 1928, 250, text (eggs).—DEVINCENZI, Anal. Mus. Hist. Nat. Montevideo, ser. 5, iii, 1929, 30, part (plumages; United States southward).—ROBERTSON, Condor, xxxi, 1929, 181 (Orange County, Calif.).—HOWARD, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea).—MERRIAM, Condor, xxxii, 1930, 301 (Petaluma Creek, Marin County, Calif.).—JEWETT, Murrelet, xiv, 1933, 79, text (Portland, Oreg.; 2 records).—QUICK, Condor, xxxix, 1937, 132, in text (Yolo County, Calif.; 1 pair as permanent res.).—MARTIN, Condor, xli, 1939, 125, text (Santa Clara County, Calif.; one seen).—STONER, Condor, xli, 1939, 120, text (Vallejo, Calif.; spec.); xlix, 1947, 85 (stomach contents, California).—WATSON, Condor, xlii, 1940, 295, in text (San Joaquin Delta, Calif.; behavior).—NICE, Bird-Banding, xii, 1941, 41, in text (San Joaquin Delta, Calif.; behavior, rev.).—BOND, Condor, xliv, 1942, 231, in text (feeds on mice).—SUTTON and PETTINGILL, Auk, lix, 1942, 8 (Gómez Farias region, sw. Tamaulipas); Wils. Bull., liv, 1942, 199 (Nuevo León, Mexico; single bird seen several times near Monterrey, Feb. 26 and 27, 1941).—WOOD Condor, xlv, 1943, 159, in text (Santa Barbara County, Calif.).—FISHER, Auk, lxii, 1945, 126, 127 (flight and musculature).—MOWBRAY, Condor, xlix, 1947, 173 (Nacimiento River, Calif.; 1 seen Apr. 26, 1944).

Elanus cucurus (typogr. error) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 264 (near San Francisco, Calif.).

Elanus leucurus a. var. *leucurus* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 53, part (Orizaba, Veracruz).

Elanus leucurus var. *leucurus* RIDGWAY, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 197, part.

Elanus axillaris subspecies *a. leucurus* GURNEY, List Diurn. Birds Prey, 1884, 84, part.

Elanus axillaris leucurus SWANN, Synopt. List Accip., pt. 3, 1920, 103, part (s. United States).

Elanus glaucus COUES, Proc. Acad. Nat. Sci., Philadelphia, 1875, pt. 2, 345 (ex *Falco glaucus, the sharp-winged* hawk of a pale sky blue color, the tip of the wings black, Bartram, Travels in Florida, etc., 1791, 290[46]; Check List

[46] Bartram's bird is not with certainty identifiable; it may as likely be the adult male of *Circus hudsonius*.

North Amer. Birds, ed. 2, 1882, No. 492; Key North Amer. Birds, ed. 2, 1884, 525; Auk, xiv, 1897, 216 (crit. nomencl.).—Gibbs, Bull. U. S. Geol. and Geogr. Surv. Terr., v, No. 3, 1879, 490 (Michigan; rare; summer res.).—Sennett, Bull. U. S. Geol. and Geogr. Surv. Terr., v, 1879, 418 (Santa Maria, Tex., May 5).—Nehrling, Bull. Nuttall Orn. Club, vii, 1882, 173 (se. Texas).

Elanus leucurus majusculus Bangs and Penard, Proc. New England Zool. Club, vii, 1920, 46 (San Rafael, Marin County, Calif.; coll. Mus. Comp. Zool.).—Swann, Synop. Accip., pt. 3, 1922, 162 (s. United States to Central America).—Griscom and Crosby, Auk, xlii, 1925, 534 (status, Brownsville, Tex., region).—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 106 (distr., Lower California); xxxviii, 1932, 266 (type loc.; crit.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 192 (type in Mus. Comp. Zool.).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 185 (distr., Lassen Peak Region, n. California).—Pickwell, Condor, xxxii, 1930, 211 (life hist., etc.); Condor, xxxiv, 1932, 44 (status, Santa Clara Valley, Calif.).—American Ornithologists' Union, Check-list, ed. 4, 1931, 62 (distr.).—[Arthur?], Birds Louisiana, 1931, 194, text (descr.; status, Louisiana).—Edge, Condor, xxxiii, 1931, 78 (Alexander Valley, Sonoma County, Calif.).—Huey, Auk, xlviii, 1931, 620 (nesting, Lakeside, San Diego County, Calif.; specimen Tia Juana, March; San Diego County, Calif.).—Moffitt, California Fish and Game, xvii, 1931, 412 (California; formerly abund.; habits; plum.; food; figure).—Peters, Check-list Birds of World, i, 1931, 193 (distr.).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 21 (Missouri; accidental).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 162 (distr.; Guatemala).—Howell, Florida Bird Life, 1932, 163 (genl.; Florida).—Neff, Condor, xxxiv, 1932, 259 (near Sacramento, Calif.); xxxvi, 1934, 218, in text (Sacramento, Calif.; 2 records).—Risser, Auk, xlix, 1932, 107, in text (Brownsville, Tex.).—Stoner, Condor, xxxv, 1933, 121, in text (Benicia, Calif., spec.).—Willett, Pacific Coast Avif., No. 21, 1933, 39 (sw. California; formerly fairly common res.—now rare; breed.; synonyms).—Bowen, Condor, xxxvi, 1934, 117, in text (Balboa Beach, Calif.; 1 seen).—Sprunt, Auk, lii, 1935, 445, text (Bulls Island, S. C.; seen May 7, 1929).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 113 (Connecticut Valley, Mass.; habits).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 54 (life hist.).—Miller, Condor, xxxix, 1937, 222, text (Butte County, Shasta County, Calif.; records).—Compton, Univ. California Publ. Zool., xlii, 1938, 176, 179, 184, 197, 205 (pterylosis).—Ford, Auk, lv, 1938, 132, in text (Brownsville, Tex.; uncommon).—Oberholser, Bird Life of Louisiana, 1938, 155 (Louisiana,; accidental; spec. from river opp. Kenner [Oct. 11, 1890] and sight record near Monroe [Nov. 2, 1930]).—Bond, Condor, xlii, 1940, 168, in text (Ventura County, Calif.; nest; food habits).—Gabrielson and Jewett, Birds Oregon, 1940, 181 (Oregon; rare straggler [2 sight records: Colorado River 20 miles w. of Portland; Blue Lake in Colorado River flats, e. of Portland, "8 or 10 years ago"]; descr.; distr.).—Hawbecker, Condor, xlii, 1940, 106, in text (Santa Cruz County, Calif.; nest habits; food habits); Condor, xliv, 1942, 267, in text (California; life hist.).—Nice, Bird-Banding, xi, 1940, 116, text (Santa Cruz County, Calif.; nest).—Moore and Barr, Auk, lviii, 1941, 453 (habits).—Drury and Parker, Auk, lix, 1942, 430, text (west of Okechobee City, Fla.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 26 (Campeche and Palizada, Mexico; spec.; meas.; "must have nested nearby").—Brooks, Condor, xlv, 1943, 119, in text (California; attitudes).—Grinnell and Miller, Pacific Coast Avif. No. 27, 1944, 96

(California: res. throughout year).—Hill, Auk, lxi, 1944, 230–231 (meas.; sex dimorphism).—McAtee, Wils. Bull., lvi, 1944, 157 (Gulf States e. of Texas; res.; migr.).

Elanus axillaris majusculus Oberholser, Auk, xxxvi, 1921, 266.—Dawson, Birds California (stud. ed.), iii, 1923, 1648 (genl.; California).

Genus GAMPSONYX Vigors

Gampsonyx Vigors, Zool. Journ., ii, No. 5, April, 1825, 69. (Type, by monotypy, *G. swainsoni* Vigors.)

Gampsonix Lesson, Bull. Univ. Sci. Nat., vii, 1826, 106.

Small hawks resembling *Elanus*, but much smaller (wing about 130–165 mm.); tail relatively longer (nearly three-fifths as long as wing), with lateral pair of rectrices not shorter than middle pair; wing relatively shorter, the longest primary exceeding distal secondary by decidedly less than half the length of wing; scales on legs and feet relatively much longer, hexagonal rather than circular, the toes with more numerous transverse scutellae, and coloration very different (adults without bluish gray on upperparts and with rusty on sides and thighs).

Bill relatively small, broad basally and compressed terminally, its depth at nostril about equal to its width at same point; culmen (chord) equal to decidedly more than half the length of middle toe without claw, strongly and regularly decurved from base, broadly rounded above; maxillary tomium concave immediately behind the rather long unguis, thence nearly straight to rictus; the tomium with a very slight convexity directly beneath nostril; gonys less than half as long as distance from nostril to tip of maxilla, very faintly convex, ascending terminally, prominent basally (through narrowness of rami), indistinctly ridged. Nostril very small, circular, a little anterior to center of cere. Wing moderate, pointed, the longest primary exceeding distal secondary by decidedly less than half the length of wing; third primary (from outside) longest (the second nearly as long), the first a little longer than fifth; outermost primary with inner web emarginated near tip, the second and third slightly sinuated (or gradually narrowed) terminally. Tail a little less than three-fifths as long as wing, very slightly double-rounded (the middle and lateral pairs of rectrices a very little shorter than the intermediate ones and equal in length), the rectrices of nearly uniform width throughout, their tips rounded. Tarsus about two-and-a-half times as long as culmen, the upper half or more feathered anteriorly and laterally, elsewhere quite uniformly covered by small hexagonal scales; toes stout, the middle one (without claw) nearly three-fourths as long as tarsus, the outer and inner of equal length, each reaching about to penultimate articulation of middle toe; hallux a little shorter than lateral toes, but stouter; claws moderately large, strongly curved,

acute, that of the hallux about one-and-a-half times as long as that of outer toe, all rounded (not grooved) on under surface; no webs between basal phalanges of toes, but basal phalanx of middle toe united to that of inner toe for about half its length.

Plumage and coloration.—Plumage soft and blended, the primaries and rectrices not rigid; lores rather densely feathered, the feathers, like those of forehead, with bristlelike tips; a narrow, mostly concealed, naked space above and another immediately beneath eyelids. Adults plain dusky above relieved by a buff frontal patch and nuchal collar of chestnut or cinnamon-rufous; underparts mostly plain white, the sides of head buff or straw yellowish, a dusky patch on each side of chest, the thighs, axillars, etc., ochraceous. Young essentially like adults, but nuchal collar white and feathers of upperparts usually with rusty margins.

Nidification.—Nest built high up in tall trees (often several in one tree); three eggs, 29.5 by 24.25 mm. in size, nearly elliptical, unglossed white with three brown blotches.

Range.—Continental Tropical America, from Nicaragua to Paraguay, southern Brazil, and Peru. (Monotypic.)

GAMPSONYX SWAINSONII LEONAE Chubb [47]

Northern Pearl Kite

Adult (sexes alike).—Forehead and anterior portion of crown antimony yellow to pale honey yellow; rest of crown and occiput blackish plumbeous with an ashy cast, especially at the anterior edge of this color area on the crown; a narrow white nuchal band across the nape connects with the white of the sides of the neck; posterior to this is a slightly broader band of russet which continues in a very shallow V in the middorsal line, a few millimeters on to the interscapulars; interscapulars, scapulars, back, rump, upper tail coverts and upper wing coverts blackish plumbeous with a slightly ashy cast, the feathers whitish basally; bend of the wing white, suffused with pale buff; the lower back and scapulars sometimes with a faint suggestion of dark vinaceous brown in a few feathers; primaries externally blackish

[47] Two very closely allied forms occur in southern and western South America, as follows:

Gampsonyx s. swainsonii Vigors (*Gampsonyx Swainsonii* Vigors, Zool. Journ., ii, 1825, 69): from the Amazon (south bank) south to Paraguay, northwestern Argentina, Bolivia, and to eastern Ecuador and eastern Peru; averaging paler rufescent on the flanks, sides, and thighs, and somewhat smaller in size.

Gampsonyx s. magnus Chubb (*Gampsonyx swainsonii magnus* Chubb, Bull. Brit. Orn. Club, xxxix, 1918, 22): western Ecuador and western Peru. Size slightly larger than in the nominate race, or in the northern form *leonae*; coloration as in the nominate form.

plumbeous broadly edged on the inner web, and very narrowly tipped with white, chiefly whitish on the under side; secondaries blackish plumbeous, broadly tipped with white and broadly edged on the inner web with white, this white increasing on the inner remiges until the whole feather is white save for a large subterminal plumbeous blotch, the white extending to both webs; the dark blotch frequently with a touch of russet to vinaceous brown; rectrices dark slate gray

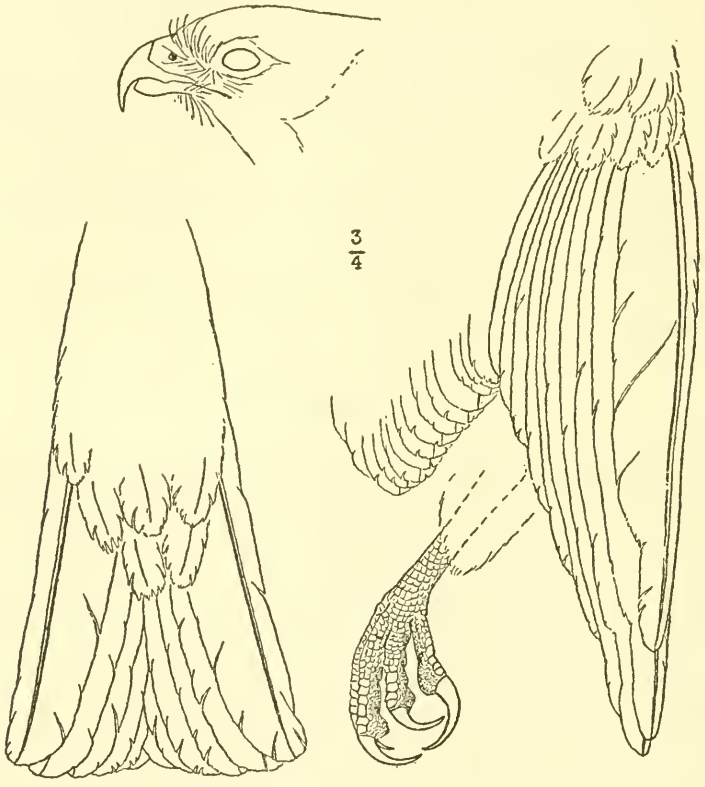

FIGURE 6.—*Gampsonyx swainsonii.*

very narrowly tipped (in fresh plumage) with white; all but the median pair with the inner webs edged broadly with white; lores, cheeks, and auriculars antimony yellow to pale honey yellow; chin, throat, sides of neck, breast, adbomen, and under tail coverts white; a dark blackish plumbeous gorget on either side of the breast; central and lower abdomen washed with pale buff to maize yellow; sides and flanks and under wing coverts mixed with pale mikado brown to pale russet; thighs russet to buff mixed with russet; iris chestnut; cere and bill blackish; tarsi and toes chrome yellow; claws black.

Juvenal (sexes alike).—Similar to adult, but with the feathers of the hind part of the crown and the occiput tipped with pale and rather ashy fulvous; the white nuchal collar tinged with tawny fulvous; the feathers of the entire back (interscapulars to rump) and the scapulars and inner secondaries washed subterminally with dull bister which shows through its blotches; the white tips of the inner secondaries somewhat suffused with pale fulvous tawny in some cases.

Natal down.—"White below; above pale vinaceous cinnamon, the wings being darkest and the neck and head palest; there is a small dusty spot above the eye and the loral region is dusky blackish" (Cherrie).

Adult male.—Wing 141–154 (150); tail 94–98 (95.8); culmen from cere 13–14 (13.4); tarsus 28–30 (28.8); middle toe without claw 19–21 (20 cm.).[48]

Adult female. Wing 150–163 (158); tail 95–102 (99.3); culmen from cere 14 (14); tarsus 31–32 (31.2); middle toe without claw 20–22 (20.9 mm.).[49]

Range.—Resident in thinly wooded savanna regions of western Nicaragua (León), where it is said to be common, and again from the Santa Marta region of Colombia (Rio Frío; Bonda; Gaira; Mamatuco; Dibulla; Fundación) east through Venezuela (Agua de Salada; Maruaria; Ciudad Bolívar; Altagracia; Caicara; Quiribana de Caicara; San Julián; Nevada; Valle) and Margarita Island and Trinidad, to French Guiana and the higher interior of British Guiana (Merume Mountains; Annai; Upper Takutu Mountains; Rupununi Savannas); south to northern Brazil (Miritiba; Bona Vista; Barro do Rio Grande; Santarém; Rio Tapajóz; not crossing the northern bank of the Amazon).

Type locality.—León, western Nicaragua.

Elanus swainsoni Kaup, Isis, 1847, 109, part.

Elanus swainsonii Kaup, *in* Jardine's Contr. Orn., 1850, 59, part.—Schlegel, Mus. Pay-Bas, ii, No. 7, livr. 2, 1863, 9, part (Colombia; Brit. Guiana).

Gampsonyx swainsonii Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 735.—Hellmayr, Nov. Zool., xvii, 1910, 413, part ("Central America").

Gampsonyx swainsoni Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 46, part.—Sclater and Salvin, Proc. Zool. Soc. London, 1866, 252 (Maruaria, Venezuela); Nom. Av. Neotr., 1873, 121, part.—Pelzeln, Orn. Bras., Abth. 1, 1868, 6, Abth. 4, 1870, 398 (n. Brazil).—Finsch, Proc. Zool. Soc. London, 1870, 557 (Trinidad; crit.).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 340, part (Trinidad); Hand-list, i, 1899, 270, part.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 151, part (Sabanilla, Colombia).—Gurney, Ibis, 1879, 330, in text, part (Santa Marta, Colombia; descr. young); List Diurn. Birds Prey, 1884, 83, part; Cat. Birds Prey, 1894, 26, part.—Salvin, Ibis, 1886, 77 (Merume Mountains, Brit. Guiana); Bull. Brit.

[48] Five specimens from Venezuela and northern Brazil (Santarém).

[49] Six specimens from Venezuela (San Julián) and northern Brazil (Santarém).

Orn. Club, No. 6, 1893, xxxii (León, Nicaragua).—Riker, Auk, viii, 1891, 161 (Santarém, lower Amazon, Brazil).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 71 (Trinidad).—Loat, Ibis, 1898, 563 (British Guiana).—Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 131 (Bonda, Santa Marta, Colombia).—Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 168 (San Julián, Venezuela).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1901, 98, part (León, Nicaragua).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 114 (Alta Gracia, Caicara, Quiribana de Caicara, Ciudad Bolívar, and Suapuré, Venezuela; color of unfeathered parts).—Clark, Auk, xix, 1902, 261 (Margarita Island, Venezuela).—Berlepsch, Nov. Zool., xv, 1908, 293 (Cayenne).—Cory, Publ. Field Mus. Nat. Hist. No. 137, 1909, 241, 253 (Margarita Island, Venezuela).—Reiser, Denkw. Met.-Nat. k. Akad. Wiss. Wien, 1910, 90 (Barra do Rio Grande, ne. Brazil).—Brabourne and Chubb, Birds South Amer., i, 1912, 72, part (Venezuela; Trinidad; Guiana).—Reichenow, Die Vögel, i, 1913, 404.—Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 346 (Agua de Salada, Ciudad Bolívar, Altagracia, Caicara, and Quiribana de Caicara, Venezuela; color of unfeathered parts; descr. nest and eggs and of downy young; food).—Chubb, Birds Brit. Guiana, i, 1916, 271 (habits).

Gampsonix swainsonii Léotaud, Ois. Trinidad, 1866, 41.

Gampsonyx swainsonii swainsonii Chubb, Ibis, 1919, 287, part (Venezuela; Trinidad; Brit. Guiana).

Gampsonyx swainsonii leonae Chubb, Bull. Brit. Orn. Club, xxxix, No. 237, 1918, 22 (León, Nicaragua; coll. Brit. Mus.).—Peters, Check-list Birds of World, i, 1931, 281.—Belcher and Smooker, Ibis, 1934, 593 (Trinidad; 2 records).—Roberts, Trop. Agr., xi, No. 4, 1934, 6 (Trinidad).—Swann, Monogr. Birds Prey, ii, 1936, 273 (León, Nicaragua).—Dugand, Rev. Acad. Colomb., iii, 1940, 221 (Magdalena-Caribbean area of Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 117 (Lower Amazonia; Rio Tapajóz; Obidos; Santarém; spec.).

Gampsonyx swainsoni leonae Swann, Synopt. List Accipt, pt. 3, 1920, 104; Synop. Accip., pt. 3, 1922, 164 (Nicaragua).—Miller and Griscom, Amer. Mus. Nov., No. 25, 1921, 13 (crit.).

Gampsonyx swainsoni meridensis Swann, Synopt. List Accip., pt. 3, 1920, 104 (Sierra Nevada de Merida, 3,000 m., Venezuela); Auk, xxxviii, 1921, 363 (Nevada and Valle, 2,000–3,000 m., Venezuela; Bona Vista and Miritiba, ne. Brazil; crit.); Synop. Accip., pt. 3, 1922, 163 (Venezuela; Brit. Guiana; Trinidad).—Miller and Griscom, Amer. Mus. Nov., No. 25, 1921, 13 (crit.; consider *G. s. leonae* and *G. s. meridensis* not separable).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 144 (Bona, Gaira, Mamatuco, Dibulla, Fundación, and Santa Marta, Colombia, crit.).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 365 (Río Frío, Magdalena, Colombia).

Subfamily Perninae: Honey Buzzards and Swallow-tailed Kites

<Pernes Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 52 (excludes *Elanoides*, referred to *Pandiones*).

=Pernes Ridgway, U. S. Geol. and Geogr. Surv. Terr. Bull., 2, ser. 2, 1876, 152.

>Perninae Pycraft, Proc. Zool. Soc. London., 1902, 315 (includes, doubtfully, *Pandion*).

=Perninae Wetmore and Miller, Auk, xliii, 1926, 342.—Peters, Check-list

Birds of the World, i, 1931, 194.—American Ornithologists' Union, Check-list, ed. 4, 1931, 63.

<Elanoidinae Shufeldt, Ibis, 1891, 232 (*Elanoides* only).

Superciliary process of the lachrymal simple and much abbreviated (as in the Pandionidae) but not ankylosed with the frontal bone; coracoids not overlapping at sternum; upper portion of anterior face of tarsometatarsus with no bony ring; but with the two posterior processes more or less fused into a ring; outer (fourth) toe not reversible; claws graduated in size and flattened or slightly grooved beneath; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; palate desmognathous, caeca minute; cervical vertebrae 13–14; sides of head densely feathered close up to eyelids, the eyes prominent and not overhung by a superciliary shield; feet small, tarsus very short, scarcely exceeding the middle toe in length; outer and middle toes not united at the base by a membrane; tarsus covered with irregular, usually hexagonal, scales, never scutellate; middle claw with its inner edge much produced, convex, sharp, sometimes with rudimentary pectinations; plumage soft.

The Perninae is represented in North and Middle America by three genera, *Elanoides*, *Leptodon*, and *Chondrohierax*. In the Old World are found three others, *Aviceda*,[50] *Pernis*,[51] and *Henicopernis*.[52] The last two, the true honey buzzards, may be taken as "typical" of the subfamily. They are more like *Leptodon* than like *Elanoides* or

[50] *Aviceda* Swainson, Classif. Birds, i, 1836, 300 (diagnosis; no included species). Type, by subsequent designation, *Aviceda cuculoides* Swainson, op. cit., ii, 1837, 214.—*Avicida* (emendation) Strickland, Ann. Nat. Hist., vi, 1841, 416.—*Lophastur* Blyth, Journ. Asiat. Soc. Bengal, xi, 1842, 463 (type, by monotypy, *Pernis jerdoni* Blyth=*Lophotes reinwardti* Müller and Schlegel)=*Lophotes* (not of Giorna 1803) Lesson, Traité d'Orn., 1830, 96 (type, by monotypy, *L. indicus* Lesson=*Falco lophotes* Temminck).—*Baza* Hodgson, Journ. Asiat. Soc. Bengal, v, 1836 (1837) 777 (type of monotypy, *B. syama* Hodgson=*Falco leuphotes* Dumont).—*Lepidogenys* (J. E. Gray) Gould, Synop. Birds Australia, iii, April, 1838, in text to pl. 46 (new name for *Lophotes* Lesson, preoccupied).—*Lepidogenis* (emendation) Lesson, Rev. Zool., ii, 1839, 133.—*Hyptiopus* Hodgson, Journ. Asiat. Soc. Bengal, x, 1841, 27 (new name for *Baza* Hogdson).—*Hyptyopus* (emendation) Blyth, Journ. Aisat. Soc. Bengal, xi, 1842, 104.—*Hytiopus* (emendation) Sharpe, Cat. Birds Brit. Mus., i, 1874, 351 (in synonymy of *Baza*).

[51] *Pernis* Cuvier, Règne Anim., i, 1817 (1816), 322 (type, by monotypy, *Falco apivorus* Linnaeus).—*Penis* (lapsus) Jardine, ed. Wilson's Am. Orn., ii, 1832, 275 footnote.—*Pernes* (emendation) Gloger, Hand-und Hilsfbuch, 1842 (1841), 215.—*Pternes* (emendation) Gloger, Hand-und Hilfsbuch, 1842, (1841), 215.—*Pternis* (emendation) Newton Dict. Birds, 1893, 426.—*Pterochalinus* Gloger, Hand-und Hilfsbuch, 1842 (1841), 215 (new name for *Pernis* Cuvier).

[52] *Henicopernis* G. R. Gray, Proc. Zool. Soc. London, 1859, 153 (type, by monotypy, *Astur longicauda* Lesson=*Falco longicauda* Garnot); Hartert, Nov. Zool., xxxiii, 1926, 126–127; Peters, Check-list Birds of the World, i, 1931, 198.

Chondrohierax and may be told easily by their having the maxillary tomium unindented.

Genus ELANOIDES Vieillot

Elanoides[53] Vieillot, Nouv. Dict. Hist. Nat., xxiv, 1818, 101. (Type, by monotypy, "Les Milans de la Caroline et du Paraguay"=*Falco forficatus* Linnaeus.)

Elasas[54] Heine, *in* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 263. (New name for *Elanoides* Vieillot, rejected on grounds of purism.)

Long-winged, long-tailed "kites" with tail very deeply forked, the head, neck, and underparts immaculate white, back, wings, and tail blackish.

Bill relatively small and narrow (intermediate in general form between that of *Pandion* and that of *Elanus*), compressed anteriorly, very broad basally, the maxillary unguis moderately produced; maxillary tomium faintly to rather distinctly convex at about or slightly posterior to middle portion, the mandibular tomium strongly convex throughout; gonys nearly straight; cere slightly ascending basally, its anterior lateral outline forming a nearly straight oblique line; nostril obliquely oval. Wing very long, narrow, and pointed, the longest primary exceeding distal secondary by more than half the length of wing; third, or second and third, primaries longest, the first intermediate between the fourth and fifth; inner web of first and second (only) obliquely emarginated. Tail about four-fifths as long as wing, very deeply forked (the lateral pair of rectrices more than twice as long as middle pair), the rectrices gradually narrowed (tapering) distally, their tips narrowly rounded. Tarsus about one-eleventh as long as wing, relatively stout, the upper half (approximately) feathered, except on plantar tarsi, the remainder covered with irregular hexagonal scales; middle toe (about five-sixths as long as tarsus); lateral toe about equal in length, extending to near middle of third phalanx of middle toe; hallux slightly but decidedly shorter than lateral toes, its claw about as long as the digit; no web between basal phalanges of outer and middle toes; upper surface of toe with transverse scutella nearly to base; claws relatively rather short (except that of hallux), rather stout, abruptly flattened beneath, with edges very sharp, that of inner toe somewhat bent laterally, its projecting inner edge very convex, sharp, and entire.

Plumage and coloration.—Plumage rather full and compact, blended; loral region densely feathered, the feathers with bristly tips; plumage of thighs elongated, the tips of longer feathers reaching to base of

[53] ἰλαγος, milvus; εἰδὸς forma (Vieillot).

[54] Ἐλασᾶς, an unknown bird (Richmond).

toes.[55] Adults with head, neck, and underparts (including underwing coverts) immaculate white, upperparts mostly black, glossed with dark bronzy purple or greenish. Young similar, but head and neck narrowly streaked with dusky and black of upperparts less glossy.

Range.—Southern United States to Bolivia and Argentina. (Monotypic.)

KEY TO THE SUBSPECIES OF ELANOIDES FORFICATUS

a. Scapulars and interscapulars glossed with dark ivy green (Campeche, southern Mexico, south to Argentina)..... **E. f. yetapa** (p. 90)

aa. Scapulars and interscapulars glossed with dark purplish black (east and central Mexico, northward)..... **E. f. forficatus** (p. 83)

ELANOIDES FORFICATUS FORFICATUS (Linnaeus)

North American Swallow-tailed Kite

Adult (sexes alike).—Tail very deeply forked, the lateral rectrices more than twice as long as the central pair; wings long, narrow, pointed; head, nape, neck, entire underparts, and a broad transverse area on the lower back white; wings, tail, rump and lower back, and broad interscapular region of upper back slate to blackish slate with a slate-gray bloom on the secondaries, greater upper wing coverts and upper tail coverts; scapulars and interscapulars with blackish violet-gray sheen, in some lights showing some bronze-green, the interscapulars like the scapulars but with relatively more bronze-green and less blackish violet-gray gloss; the median upper primary coverts and

[55] *Pterylographic characters.*—"Inner branch of the jugular part [of ventral pterylae] distinct but short; outer branch entirely free. Dorsal portion of the spinal tract usually long." (Nitzsch.) Contour-feathers with aftershafts; one pair of inguinal powder-down patches; lumbar tract present; remiges 23.

Osteological characters.—Cranium very similar in contour and proportions to that of *Pandion*, but presenting important modifications in minor details. Superciliary process of the lachrymal distinct from the frontal, which is completely ankylosed with the nasal; inner convoluted edge of the palatines scarcely produced downward; nasal septum completely ossified; pterygoid bone narrow, and of a uniform width throughout its length. Sternum similar to that of *Pandion*, having, like it, a pair of indentations on the posterior margin, and destitute of foramina; the clavicle, coracoids, and scapula are also very similar.

Anatomical characters.—"Palate flat with two longitudinal ridges; upper mandible with a tuberculate median ridge, lower deeply concave; posterior aperture of the nares oblongolinear, with the edges papillate. Tongue somewhat decurved, emarginate, and finely papillate at the base, flat above, its tip narrow and acutely emarginate. Œsophagus of nearly uniform width, being destitute of crop, and thus resembling that of the owls; its walls extremely thin; stomach very large, round, slightly compressed, its muscular coat very thin, and composed of a single series of fasciculi. Intestine short and rather wide; pylorus with three knobs, duodenum forming a loop in the usual manner; no cæca; rectum short, with a large globular dilatation." (Macgillivray.)

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the alula darker than the rest of the wing, slate black; secondaries white for their basal two-thirds (the white covered by the overlapping feathers) the terminal third slate or blackish slate; secondaries, rump, and rectrices sometimes with an oily green sheen; the under wing coverts white except for a few slate-black feathers at the margin of the bend of the wing; iris varies (in descriptions) from red or reddish to very dark brown; eyelids, cere, the basal half of the mandible, the base of the maxillary tomium, and the rictus plumbeous blue, the maxilla (except for the basal tomial part) deep black; interior of mouth cobalt blue; tarsus and toes pale ashy bluish, often with a yellowish or greenish tinge, claws grayish brown.

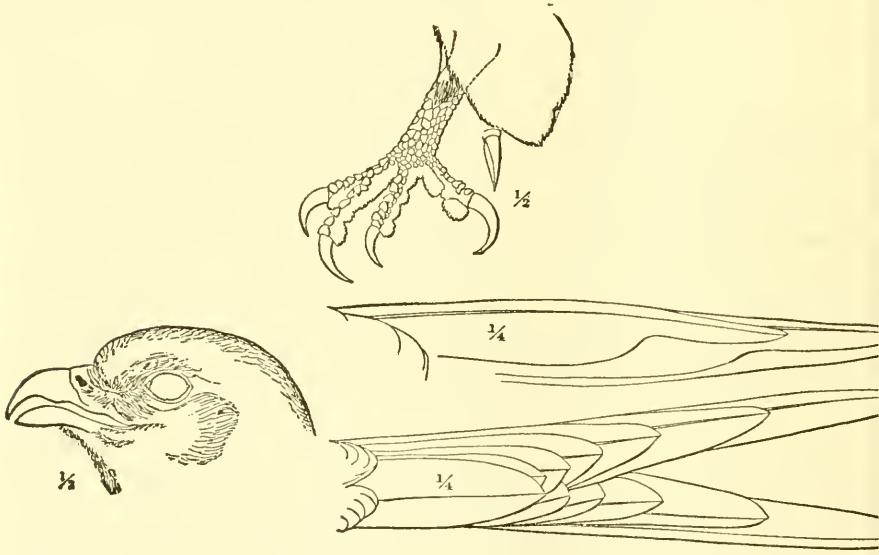

FIGURE 7.—*Elanoides forficatus.*

Immature (sexes alike).—Similar to adults but with the head, nape, throat, and upper breast streaked with narrow fuscous shaft streaks, the streaks darker above than below; tail, rump with an oily greenish sheen, no "bloom" on secondaries, upper wing and tail coverts; remiges and rectrices tipped narrowly with whitish.

Downy young.—Buffy white, the buff most pronounced on nape, occiput, and breast.

Adult male.—Wing 423–436 (431.3); tail 328–343 (334.4); culmen from cere 19–20 (19.5); tarsus 32–33 (32.6); middle toe without claw 27–29.5 (28.2 mm.) (8 specimens).

Adult female.—Wing 436–445 (440.3); tail 343–370 (355.6); culmen from cere 19–21 (20); tarsus 32–33 (32.8); middle toe without claw 28.5–30 (29.2 mm.) (12 specimens).

Range.—Breeds from northern Minnesota, South Dakota, southern Wisconsin, central Illinois, southern Indiana (formerly Ohio), and North Carolina, to Florida, Alabama, Texas, and eastern Mexico; winters south of the United States in Central America (in Guatemala known only as a migrant), and south as far as Ecuador (Bucay), the winter range very imperfectly known; accidental or casual in New Mexico, Colorado, southern Saskatchewan, southern Manitoba; Michigan, northern Wisconsin, Ontario, New Hampshire, Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Maryland, West Virginia, and Virginia; also in England and the Greater Antilles (Cuba, Jamaica).

Type locality.—Carolina.

Falco forficatus Linnaeus, Syst. Nat., ed. 10, i, 1758, 89 (South Carolina; based on *Accipiter cauda furcata, The Swallow-tail Hawk*, Catesby, Nat. Hist. Carolina, i, 1731, 4, pl. 4), in America=South Carolina).

Nauclerus forficatus Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144; Proc. Boston Soc. Nat. Hist., xvi, 1873, 52 [26 of reprint] (lower Wabash Valley); Amer. Nat., vii, 1873, 200, in text (Fox Prairie, Richland County, Ill.; habits); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 192; Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Illinois).—Trippe, Comm. Essex Inst., vi, 1871, 113 (Minnesota; rather common).—Coues, Birds Northwest, 1874, 332.—Nelson, Bull. Essex Inst., viii, 1876, 118 (once common in ne. Illinois); ix, 1877, 42 (Mt. Carmel, Ill.), 49 (s. Illinois: Fox Prairie, Richland County), 57 (Cairo, Ill.; numerous), 65 (s. Illinois).—Merriam, Birds Connecticut, 1877, 77 (rare straggler; formerly common n. to Vermont, where said to have been winter res.).—Berier, Bull. Nuttall Orn. Club, vi, 1881, 126 (s. shore Long Island, 1 spec. in 1845).—Chadbourne, Quart. Journ. Boston Zool. Soc., ii, 1883, 16 (Amesbury, Mass., 1 spec., Sept. 25).—Agersborg, Auk, ii, 1885, 284 (se. South Dakota, summer res.).

Elanoides forficatus Coues, Proc. Acad. Nat. Sci. Philadelphia, 1875, 345 (Bartram's notes); Bull. Nuttall Orn. Club, iii, 1878, 147 (Fort Sisseton, S. Dak., through winter of 1877–78); Check List North Amer. Birds, ed. 2, 1882, No. 493; Bull. Nuttall Orn. Club, viii, 1883, 61 (West Newbury, Essex County, Mass., 1 spec., Sept. 1882); Key North Amer. Birds, ed. 2, 1884, 526.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. No. 2, 1876, 181 (Monogr.); Nom. North Amer. Birds, 1881, No. 426; Bull. Illinois State Lab. Nat. Hist., No. 4, 1881, 189 (Illinois); Man. North Amer. Birds, 1887, 224; Orn. Illinois, i, 1889, 444.—Sennett, U. S. Geol. and Geogr. Surv. Terr. Bull. No. 4, 1878, 42 (se. Texas); No. 5, 1879, 419 (Corpus Christi, Tex., March 21).—Gibbs, U. S. Geol. and Geogr. Surv., Bull. No. 5, 1879, 490 (Michigan).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; former summer visitant).—Wheaton, Bull. Nuttall Orn. Club, iv, 1879, 62 (near Columbus, Ohio, 1 spec., Aug. 22, 1878); Rep. Birds Ohio, 1882, 418, 579 (Ohio; syn.; descr.; hist.; range).—Nehrling, Bull. Nuttall Orn. Club, vii, 1882, 173 (Houston, etc., Tex.; habits); Warbler, ser. 2, i, 1905, 36–41 (habits, etc.).—Talbot, Bull. Nuttall Orn. Club, vii, 1882, 59 (near Jamestown, S. Dak., several seen Nov. 14, 1881).—Trombley, Bull. Nuttall Orn. Club, viii, 1883, 250 (Munroe County, Mich., 1 pair, June 19, 1882).—Cory, List Birds West Indies, 1885, and rev. ed., 1886, 22 (Cuba; Jamaica); Auk, iv, 1887, 46 (Cuba; Jamaica); Birds West Indies, 1889, 204;

Cat. West Indian Birds, 1892, 98; Publ. Field Mus. Nat. Hist., No. 131, 1909, 451 (common in Illinois, casual in Wisconsin).—Goss, Auk, ii, 1885, 19 (Neosho Falls, Kans.; breeding habits; descr., nest and eggs); Hist. Birds Kansas, 1891, 247 (Kansas; irreg. summer resident; descr.; habits; eggs).—American Ornithologists' Union, Check-list, 1886, No. 337 (part); ed. 2, 1895, 126; ed. 3, 1910, 153, part.—Park, Auk, iii, 1886, 484 (Pittstown, Rensselaer County, N. Y., 1 spec., July 17, 1886, several seen July 29, August 9, and August 30).—Seton, Auk, iii, 1886, 328 (Selkirk, Pembina Mountain, and Fort Q'Appelle, w. Manitoba).—Thompson, Proc. U. S. Nat. Mus., xiii, 1891, 524 (Winnepeg, Selkirk, Pembina Mountains, and Q'Appelle, w. Manitoba).—Bendire, Life Hist. North Amer. Birds, i, 1892, 168, pl. 5, figs. 1, 2.—Hatch, Notes Birds Minnesota, 1892, 176, 455 (Minnesota; nests; descr.; habits).—Morris, Abstr. Proc. Delaware Valley Orn. Club, 1892, 7 (Philadelphia, spring 1888).—Fisher, Hawks and Owls United States, 1893, 20, pl. 1.—Butler, Proc. Indiana Acad. Sci. for 1894 (1895), 25 (summer res. in Knox County, as late as 1880; seen Apr. 11, 1894); Rep. State Geologist Indiana for 1897 (1898), 771 (many records); Auk, xlvi, 1929, 198 (spec., Price Hill, Ohio).—Stone, Birds Eastern Pennsylvania and New Jersey, 1894, 85 (near Philadelphia; Lancaster County, Pa.); Birds New Jersey, 1908, 159 (New Jersey; descr.; rare straggler); Auk, xxxviii, 1921, 464 (Hartford, Ala., Jan. 26, 1921; spec.).—Gundlach, Orn. Cubana, 1895 ed., 27.—Bartsch, Auk, xiv, 1897, 326 (Virginia, opp. Washington, D. C., Apr. 11, 1897).—Cooke, Colorado State Agr. Coll. Bull. 37, 1897, 73; Bull 44, 1898, 160 (Colorado Springs; Manitou Park).—Lantz, Trans. Kansas Acad. Sci., 1896–1897 (1899), 254 (Kansas; irreg. summer res., e. Kansas).—Nash, Check List Birds Ontario, 1900, 28 (Ontario, wanderer); Check List Vert. Ontario: Birds, 1905, 39 (Ontario; 2 records).—Nicholas, Auk, xvii, 1900, 386 (Piermont, N. Y., Aug. 22, 1900).—Fleming, Auk, xviii, 1901, 37 (Port Sydney, n. Ontario, July 15, 1897).—Bailey, Handbook Birds Western United States, 1902, 148 (descr.; distr.); Birds New Mexico, 1928, 154 (genl.; New Mexico).—Dawson, Birds Ohio, 1903, 393 (Ohio; descr.; range; hist.).—Jones, Birds Ohio, rev. cat., 1903, 88 (Ohio; hist; records; specs.).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 60 (Wisconsin; habits).—Drury, Journ. Linn. Soc. Nat. Hist., xix, 1904, 174 (Chillicothe, Ohio, Aug. 1898).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 205 (West Newbury, Essex County, Mass.; accidental vis.; 1 spec., 1882); No. 5, 1920, 98 (Essex County, Mass.; accidental vis.; 1882 record only).—Deane, Auk, xxiii, 1906, 100 (Glidden, Ashland County, Wis., July 26, 1901).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 242 (Iowa; habits).—Roberts, *in* Wilcox's Hist. Minnesota, 1907, 171 (Minnesota, summer res.).—Widmann, Birds Missouri, 1907, 88 (summer res.).—Woodruff, Chicago Acad. Sci., Bull. 6, 1907, 91 (Lake Villa, n. of Chicago, June 5, 1895; formerly breeding).—Philipp, Auk, xxvii, 1910, 317 (Ellis Lake, N. C., 1 seen, June 18, 1909).—Wayne, Birds South Carolina, 1910, 69 (summer res.; habits; descr., nest and eggs).—Barrows, Michigan Bird Life, 1912, 259.—Chansler, Auk, xxix, 1912, 239 (Bemis Creek, Knox County, Ind., 2 specs., Aug. 1890; formerly breeding).—Sclater, Hist. Birds Colorado, 1912, 165 (Colorado; very rare straggler; Leaderville, Aug. 1871; and Colorado Springs, 1877; Manitou Park, 1877).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 74 (3 records).—Eaton, Birds New York, ii, 1914, 67 (rare; possibly breeding in Rensselaer County).—Phelps, Wils. Bull., xxvi, 1914, 96 (Big Cypress Swamp, Fla., breeding; nesting habits).—British Ornithologists Union, List Brit. Birds, ed. 2, 1915, 338 (several doubtful records).—

Bailey, Iowa Geol. Surv. Bull. 6, 1918, 51 (monogr.; Iowa).—Harris, Trans. Acad. Sci. St. Louis, xxiii, 1919, 259 (Kansas City, Mo., rare summer resident).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 162 (North Carolina, 1919, descr.; range); Birds North Carolina, 1942, 89 (North Carolina).—Bangs and Kennard, List Birds Jamaica, 1920, 5 (rare or accidental vis.).—Cahn, Wils. Bull., xxxiii, 1921, 172 (Baldwin, ne. Texas, June 11).—Holt, Geol. Surv. Alabama Mus. Pap. No. 4, 1921, 47 (Alabama; not common; once abundant; may breed along Warrior River).—Over and Thoms, Birds South Dakota, 1921, 81 (rare summer vis.).—Griscom, Birds New York City Region, 1923, 181 (status, New York City region).—Johnston, Birds West Virginia, 1923, 88 (West Virginia).—Wood, Univ. Michigan Mus. Zool. Misc. Publ. No. 10, 1923, 37 (Fort Sisseton, N. Dak., "during whole of winter")[56]; Auk, xlii, 1925, 146 (rec. for North Dakota).—Mitchell, Can. Field Nat., xxxviii, 1924, 108 (Saskatchewan; rare or accidental).—Nice and Nice, Birds Oklahoma, 1924, 46 (genl., Oklahoma).—Griscom and Crosby, Auk, xlii, 1925, 534 (status, Brownsville, Tex., region).—Hankinson, Auk, xlii, 1925, 130, text (spec., near Ypsilanti, Mich.).—Pindar, Wils. Bull., xxxvii, 1925, 85 (status, Fulton County, Ky.).—Wheeler, Birds Arkansas, 1925, 46, xv, xx (1890—breeds; record in Little River County).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 427 (habits, s. Florida).—Taverner, Birds Western Canada, 1926, 184 (fig., descr., habits, w. Canada); Birds Canada, 1934, 116 (Canada; genl.).—Forbush, Birds Massachusetts and other New England States, ii, 1927, 95 (fig., descr., habits, New England).—Christy, Auk, xlv, 1928, 288 (edge of Big Cypress, s. Florida).—Gordon, Auk, xlv, 1928, 372, text (25 miles s. of Chillicothe, Ohio).—Pangburn, Auk, xlv, 1928, 98, text (Chappaqua, Westchester County, N. Y.).—Pickens, Wils. Bull., xl, 1928, 190 (upper South Carolina).—Cooke (M. T.), Proc. Biol. Soc. Washington, xlii, 1929, 35 (Washington, D. C.).—Pierce, Wils. Bull., xlii, 1930, 267 (status, Buchanan County, Iowa).—Bailey and Wright, Wils. Bull., xliii, 1931, 202 (status, s. Louisiana).—Burns, Wils. Bull., xliv, 1932, 28 (spec., Peale coll.).—Guthrie, Wils. Bull., xliv, 1932, 102, in text (eats snakes).—Sprunt, Auk, lii, 1935, 445, in text (Bulls Islands, S. C.; seen).—Bond, Birds West Indies, 1936, 77 (West Indies, distr.; migrant; descr.; local name).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 114 (Connecticut Valley, Mass.; habits; status).—Groebbels, Der Vögel, ii, 1937, 206, in text (nest-building) 231, text (use same nest for years).—Compton, Univ. California Publ. Zool., xlii, No. 3, 1938, 176 (pterylosis).—Barkalow, Wils. Bull., li, 1939, 121, in text (Daphne, Ala.; 1 record; ref. to several publ. records).—Golsan, Auk, lvi, 1939, 482, in text (Autauga County, Ala.; apparently nesting).—Smyth, Auk, lvi, 1939, 75, text (Roanoke County, Va.; record).—Tanner, Auk, lvi, 1939, 90, in text (Madison Parish, La.; 1 seen).—Rapp, Wilson Bull., liii, 1941, 196 (Nixon, N. J.; record).—Cruickshank, Birds around New York City, 1942, 128 (New York City region).—McIlhenny, Auk, lx, 1943, 543 (s. Louisiana).

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[56] Cited on authority of Coues and McChesney. Exceedingly doubtful, in fact almost certainly erroneous, as to occurrence in winter!

Bailey, Birds Florida, 1925, 66, pl. 36 (fig., distr., Florida).—Simmons, Birds Austin Region, 1925, 95 (Austin, Tex., region; habits, descr., etc.).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 237 (distr., Ecuador).—Worthington and Todd, Wils. Bull., xxxviii, 1926, 211 (Choctawhatchee Bay, Fla.).—Kennard and Peters, Proc. Boston Soc. Nat. Hist. xxxviii, 1928, 450, in text (e. Mexico).—American Ornithologists' Union, Check-list, ed. 4, 1931, 63 (distr.).—[Arthur?], Birds Louisiana, 1931, 192 (descr., status, Louisiana).—Baerg, Univ. Arkansas Agr. Exp. Sta. Bull. 258, 1931, 43 (descr.; range; food; Arkansas).—Du Mont, Auk, xlviii, 1931, 250 (Dunedin, Fla.); Wils. Bull., xliv, 1932, 236 (Iowa localities; spec.).—Nice, Birds Oklahoma, rev. ed., 1931, 69 (genl., Oklahoma).—Peters, Check-list Birds of World, i, 1931, 194 (distr.).—Bennitt, Univ. Missouri Studies, vii, No. 3, 1932, 22 (s. Missouri; uncommon summer resident).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 161 (distr.; Guatemala).—Roberts, Birds Minnesota, i, 1932, 299 (distr.; habits; Minnesota).—Swenk, Wils. Bull., xliv, 1932, 182, in text (near Oakland, Iowa).—Edwards, Auk, l, 1933, 234 (one seen Fairhope, Mobile Bay, Ala., Apr. 20, 1932).—Murray, Auk, l, 1933, 194 (one seen at Virginia end of Aqueduct Bridge, Washington, D. C., Apr. 11, 1897, by P. Bartsch).—Brown, Auk, li, 1934, 369 (near Adams Run, S. C., March 27, 1932; seen).—Dingle, Auk, li, 1934, 515 (South Carolina; 3 records for Berkeley County).—Youngworth, Wils. Bull., xlvii, 1935, 216, in text (Fort Sisseton, S. Dak.; now very rare).—Bond, Birds West Indies, 1936, 77, in text (West Indies; rare straggler; migr.; recorded from Jamaica (1) and Cuba; descr.; distr.), 413 (migr.); Check List Birds West Indies, 1940, 20 (West Indies; rare migr.; Cuba and Jamaica (1 record; not believed breeder); ed. 2, 1945, 20 (West Indies; rare).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 44 (life hist.).—Murphey, Contr. Charleston Mus., ix, 1937, 8 (Savannah Valley, Ga.; summer vis.; range; fced. habits; last spec. taken in 1917, last seen in 1919).—Stone, Bird Studies Old Cape May, i, 1937, 269 (New Jersey records).—Oberholser, Bird Life Louisiana, 1938, 155 (Louisiana; very rare summer res.; accidental winter vis.; distr.; habits; food; nest; breed.).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 8 (Michigan; at least 3 authentic records).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas; formerly common summer res.; now rare straggler; reported only as far west as Manhattan).—Ripley, Auk, lvii, 1940, 247, in text (Litchfield, Conn., 1 seen July 1938).—Todd, Birds Western Pennsylvania, 1940, 128, in text.—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 11 (sw. Ohio; one specimen).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 357 (Gulf coast of Mississippi; rare).—Hill, Auk, lxi, 1944, 230, 231 (meas.; sex dimorphism).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 172 (Kansas; rare straggler).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; fairly common in summer on coastal plain).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 8 (Nebraska; formerly rare res.; no records recent years).

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11.—Audubon, Orn. Biogr., i, 1831, 368 (Birds Amer., pl. 72); v, 1839, 371.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 95.

Milvus furcatus Vieillot, Ois. Amér. Sept., i, 1807, pl. 10 and text.—Dubois and Dubois, Oiseaux de l'Europe, i, 1868, text and pl. 15 (England).

Elanoides furcatus Vieillot, Encycl. Mèth., iii, 1823, 1205.—Gray, List Accip. Brit. Mus., 1844, 44.—Strickland, Orn. Syn., i, 1855, 141.—Sclater and Salvin, Ibis, 1859, 220 (Cajabou, Guatemala); Nom. Av. Neotr., 1873, 121, in part (Mexico; Central America, part).—Owen, Ibis, 1860, 240 (Guatemala; habits).—Schlegel, Mus. Pays-Bas, ii, No. 7, livr, 2, 1863, 5 (monogr.).—Buckley, Proc. Zool. Soc. London, 1872, 626 (Black Hawk County, Iowa; breeding).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 317, part (in synonymy); Handlist, i, 1899, 268, part.—Gurney, List Diurn. Birds Prey, 1884, 82, part; Cat. Birds Prey, 1894, 26.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 95, part (s. United States; Valley of Mexico; Cacoprieto, Oaxaca; Belize, British Honduras; Vera Paz, Tactic, Kokak, Lanquin, Rexche, and Cajabou, Guatemala; Río Segovia, Honduras).—Sclater, Rev. List Birds Jamaica, 1910, 13.—Reichenow, Die Vögel, i, 1913, 404.—Schüz, Journ. für Orn., lxxv, 1927, 143, in text (powder downs).

Elanus furcatus Vigors, Zool. Journ., i, 1824, 340.—Stephens, in Shaw's Gen. Zool., xiii, pt. 2, 1826, 49, pl. ii.—Cuvier, Règne Anim., ed. 2, i, 1829, 334.—Jameson, ed. Wilson Amer. Orn., i, 1831, 75.—Jardine, ed. Wilson's Amer. Orn., ii, 1832, 275.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 94.—Yarrell, Brit. Birds i, 1843, 71 (Balachoalist, Argyleshire, and Shawgill, near Hawes, Wensleydale, England).—Robson, Zoologist, xii, 1854, 4166 (West Cumberland, England).—Schüz, Journ. für Orn., lxxv, 1927, 99 (powder downs).

Nauclerus furcatus Vigors, Zool. Journ., ii, 1825, 387.—Lesson, Traité d'Orn., 1831, 73, part (North America).—Gould, Birds Europe, 1837, pl. 30 and text.—Bonaparte, Geogr. and Comp. List, 1838, 4; Consp. Gen. Av., i, 1850, 21; Rev. Mag. Zool., vi, 1854, 534.—Audubon, Synopsis, 1839, 14; Birds Am., 8vo. ed., i, 1840, 78, pl. xviii.—Keyserling and Blasius, Wirbelth. Eur., 1840, xxix, 136.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 97.—Giraud, Birds Long Island, 1844, 13 (Long Island, N. Y., near Raynor South, 1837).—Gosse, Birds Jamaica, 1847, 19.—Kaup, Isis, 1847, 88 (monogr.), 365, 372, 376, 377; *in* Jardine's Contr. Orn., 1850, 47.—Barry, Proc. Boston Soc. Nat. Hist., v, 1854, 2 (Wisconsin; now rare, formerly numerous).—Cabanis, Journ. für Orn., 1854, p. lxxxiv.—Brewer, North Amer. Ool., i, 1857, 38; Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 36.—Maximilian, Journ. für Orn., 1858, 20 (Missouri River).—Baird, Cat. North Amer. Birds, 1859, No. 34.—Gundlach, Journ. für Orn., 1861, 322, 403 (Cuba); Rep. Fisico Nat. Cuba, i, 1865–66, 225; Journ. für Orn., 1871, 370 (Cuba); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 101; Contr. Orn. Cubana, "1876" (1873), 45.—Albrecht, Journ. für Orn., 1862, 204 (Jamaica).—Taylor, Ibis, 1862, 128 (Florida).—March, Proc. Acad. Nat. Sci. Philadelphia, 1863, 153 (Jamaica).—Dresser, Ibis, 1865, 325 (s. Texas; habits).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City).—Gray, Hand-list, i, 1869, 27, No. 249.—Trippe, Proc. Boston Soc. Nat. Hist., xv, 1872, 232 (Decatur County, s. Iowa, breeding).—Coues, Check List North Amer. Birds, 1872, No. 337; Key North Amer. Birds, 1872, 211.—Schlegel, Mus. Pays-Bas, ii, No. 36, 1873, 129.—Snow, Birds Kansas, 1873, 2 (Lawrence,

Kans., 1 pair, July 1870).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; common).—D'Hamonville, Ois. Eur., 1876, 6 (England).—Nelson, Bull. Essex Inst., viii, 1876, 118 (ne. Illinois, rare within last 20 years).—McCauley, U. S. Geol. and Geogr. Surv. Terr., Bull. 3, 1877, 682 (Wolf Creek, Indian Territory).—Dalgleish, Bull. Nuttall Orn. Club, v, 1880, 141 (4 British rec.).—Newton and Newton, Handb. Jamaica, 1881, 110.—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173 (common names, Mexico).

Nauclerus (*Nauclerus*) *furcatus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258.

Elanoides Furficatus Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7–8, 1894, 224 (Tehuantepec, Mexico; rare).

ELANOIDES FORFICATUS YETAPA (Vieillot)

South American Swallow-tailed Kite

Adults.—Similar to *E. f. forficatus*, but with the scapulars and interscapulars glossed with dark ivy green.

Immature.—As in *E. f. forficatus*, but with the same difference as in adults with regard to the scapulars and interscapulars.

Downy young.—As in *E. f. forficatus.*

Adult male.—Wing 405–447 (418.2); tail 298–330 (318.4); culmen from cere 19–20 (19.6); tarsus 31.5–33 (32.4); middle toe without claw 28–29.5 (28.8 mm.) (26 males).

Adult female.—Wing 390–427 (410.9); tail 275–326 (304); culmen from cere 19.5–21 (20.2); tarsus 32–33.5 (32.3); middle toe without claw 28–30 (28.9 mm.) (14 females).

Range.—Northeastern Argentina (Misiones), Paraguay, Bolivia, and southern Brazil north in the low tropical regions to Chiriquí, western Panama, Costa Rica, Nicaragua (Río Escondido), Honduras (Segovia River), British Honduras (Belize), Guatemala (Finca Sepacuité), and Mexico (Campeche). Known so far in Central America only as a summer visitor, probably absent in winter.

Type locality.—Paraguay.

Falco furcatus (not of Linnaeus) Daudin, Traité d'Orn., ii, 1800, 152, part (Peru).

Nauclerus furcatus Lesson, Traité d'Orn., 1831, 73, part (Brazil).—Hartlaub, Index Azara's Apunt., 1847, 57; Journ. für Orn., 1857, 41 (Mattogrosso, Brazil).—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 735; Journ. für Orn., 1874, 229 (Brazil).—Bonyan, Proc. Zool. Soc. London, 1851, 57 (Brit. Guiana; habits).—Des Murs, *in* Castelnau's Exped. Amér. du Sud., Ois., 1855, 10 (Rio Grande, Cuyaba, and Mattogrosso, Brazil; habits).—Burmeister, Syst. Übers. Th. Bras., ii, 1856, 110.—Léotaud, Ois. Trinidad, 1866, 30.—Pelzeln, Orn. Bras., Abth. 1, 1868, 6; Abth. 4, 1870, 398; Ibis, 1875, 330 ("Spanish" Guiana).—Salvin, Ibis, 1872, 323 (Chontales, Nicaragua).—Berlepsch, Journ. für Orn., 1873, 283 (s. Brazil; crit.; geogr. range).—Layard, Ibis, 1873, 394 (Pará, Brazil).—Sclater and Salvin, Proc. Zool. Soc. London, 1873, 303 (Chamicuros, e. Peru; habits).—Taczanowski, Orn. Pérou, i, 1884, 137.—Goeldi, Ibis, 1903, 498 (Rio Capim, ne. Brazil).

Milvus furcatus d'Orbigny and Lafresnaye, Synop. Avium, 1837, 5 (Moxos and Chiquitos, Bolivia).—d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 100 (Provinces of Moxos and Chiquitos, Bolivia).—Hellmayr, Nov. Zool., xxviii, 1921, 185 (Bolivia).

Elanoides furcatus Gray, List. Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 44 (Brazil).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 289 (Panama); ix, 1868, 134 (Birris, Costa Rica).—Salvin, Proc. Zool. Soc. London, 1867, 158 (Cordillera de Tolé, Veragua, Panama); 1870, 216 (Calovébora, Veraguas).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Wyatt, Ibis, 1871, 382 (Cachiri, 8,000 feet, Potreras, and Naranjo, Colombia).—Sclater and Salvin, Nom. Av. Neotr., 1873, 121, part; Proc. Zool. Soc. London, 1879, 541 (Concordia and Neche, Colombia), 638 (Provinces Moxos and Chiquitos, Bolivia).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 317, part (Brazil).—Boucard, Proc. Zool. Soc. London, 1878, 45 (Naranjo, Costa Rica).—Berlepsch, Journ. für Orn., 1884, 319 (Cachiri, Colombia); 1887, 123 (Paraguay).—Gurney, List Diurn. Birds Prey, 1884, 82, part.—Berlepsch and Ihering, Zeitschr. Orn., 1885, 171 (Arrois Grande, etc., Rio Grande do Sul, s. Brazil).—Salvin, Ibis, 1886, 76 (Bartica Grove, Brit. Guiana).—Koenigswald, Journ. für Orn., 1896, 385 (São Paulo, s. Brazil).—Holmberg, Segundo Censo Argent., i, 1898, 507 (Argentina); El Hornero, vii, 1939, 159 (United States to n. Argentina).—Loat, Ibis, 1898, 563 (Brit. Guiana).—Sharpe, Hand-list, i, 1899, 268, part (South America; Central America, part).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 95, part (Choutales, San Rafael del Norte, and Rio Escondido, Nicaragua?; Birris, Aguacate, Quebrada Honda, Cervantes, Naranjo, San Miguel, and Juan Viñas, Costa Rica; Cordillera de Tole, Calovevora, and Lion Hill, Panama; Colombia, Guiana, and s. Brazil).—Goodfellow, Ibis, 1902, 222 (Santo Domingo, w. Ecuador).—Menegaux, Bull. Mus. Hist. Nat. Paris, 1904, 108 (St. Georges d'Oyapock, Cayenne).—Hellmayr, Nov. Zool., xiii, 1906, 46 (Chaguanas, Trinidad); xiv, 1907, 29 (Urucurituba, Brazil).—Hagmann, Zool. Jahrb., 1907, 23 (Mexiana Island, Brazil).—Snethlage, Journ. für Orn., 1908, 22 (Rio Purús, w. Brazil); Bol. Mus. Goeldi, v, 1908, 67 (Rio Purús).

Elasas furcatus Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 263 (Guiana; Colombia).

Milvus yetapa Vieillot, Nouv. Dict. Hist. Nat., xx, 1818, 564 (Paraguay *ex* Azara).

Elanoides yetapa Bonnaterre and Vieillot, Encycl. Méth., iii, 1823, 1205 (Paraguay).

Falco yetapa Maximilian, Beitr. Naturg. Bras., i, 1830, 141 (Coral de Batuba, Cabo Frio; Rio Macuri; Caravellas; Ilheos; Itapemirím; Araçatiba; Coroaba on Rio Espiritu Santo).—Neuwied, Beitr. Naturg. Bras., iii, 1830, 141 (Mucuri, Caravellas, Ilheos).

Elanoides forficatus yetapa Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 249 (Naonamá, San Antonio, Laguneta, Andalusia, and Florencia, Colombia; crit.); lv, 1926, 237 (distr.; Ecuador).—Swann, Synopt. Cat. Accipitres, pt. 3, 1920, 95; Auk, xxxviii, 1921, 363 (Culata, Cupita, Escorial, and Correfos, Venezuela, 2,500–3,500 m.; crit.); Synops. Accip., pt. 3, 1922, 151 (Brit. Honduras and Costa Rica to s. Brazil, Paraguay, and Bolivia).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (Santo Domingo de los Colorados, Ecuador, 3,000–4,000 feet, Sept., March; habits).—Marelli, Elenco Sist. Fauna Prov. Buenos Aires, Aves, 1924, 630 (Buenos Aires).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 450, in

text (Brit. Honduras to Argentina; Boquete Trail, Panama, crit.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 138 (descr.; habits; Panama).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 161 (distr.; Guatemala); Bull. Mus. Comp. Zool., lxxii, 1932, 312 (Obaldia, Panama); lxxviii, 1935, 297 (Panama; common).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 212 (ne. Nicaragua; spec.; colors; meas.; reg. seen).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxiv, 1932, 299 (Honduras; Segovia River).—Belcher and Smooker, Ibis, 1934, 588 (Trinidad; a few records).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—(Anonymous), El Hornero, vi, 1935, 183 (distr.).—Pinto, Rev. Mus. Paulista, xix, 1935, 104 (Bahia, Brazil; distr.); xxii, 1938, 61 (distr.); xxiii, 1938, 506 (Amazonas, Brazil; 1 spec.; meas.; Jauareté); xxiv, 1940, 229 (Pernambuco; Itamaracá).—van Tyne, Univ. Michigan Mus. Zool. Misc. Publ. 27, 1935, 17 (Uaxactún, Petén, Guatemala; spec.; egg).—Bond, Birds West Indies, 1936, 77, in footnote (distr.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 393 (Argentina; syn.; Argentine records; distr.).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 42 (Cavulla, Azuero Peninsula, Panama, nesting).—Pereyra, Mem. Jardin Zool. La Plata, ix, pt. 2, 1938, 51 (ne. Prov. Buenos Aires).—Sassi, Temminckia, iii, 1938, 298 (Costa Rica; Castilla and Waldeck).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 110 (Lower Amazonia; Pará, Rio Capim, Peixe-Boi, Quati-puru, Mexiana Island, Santarém).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxiii, No. 1, 1945, 47 (n. Bolivia; Puerto Salinas).—Borrero, Caldasia, iv, 1946, 170 (Colombia; Sabana de Bogotá).—Street, Auk, lxiii, 1946, 370 (Trinidad).

Nauclerus forficatus (not of Linnaeus) Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 192, part (Central and South America).

Elanoides forficatus Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 148 (Chapada, Matto Grosso, Brazil).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 521 (Río Escondido, Nicaragua, May 15).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 70 (Trinidad).—Ihering, Rev. Mus. Paulista, iii, 1899, 360 (São Paulo, s. Brazil); iv, 1900, 163 (Cantagallo and Novo Tribourgo, s. Brazil); vi, 1904, 338 (Paraguay).—Ihering and Ihering, Av. Brazil, 1907, 96 (Rio Grande do Sul, São Paulo, Rio de Janeiro, Bahia, Minas Gerais, Matto Grosso, and Pará, Brazil).—Berlepsch, Nov. Zool., xv, 1908, 293 (St. Georges d'Oyapoc, Cayenne).—Beebe, Zoologica, i, 1909, 81 (Río Guarapiche and Lake Brea, ne. Venezuela, Apr.).—Carriker, Ann. Carnegie Mus., vi, 1910, 467 (Bonilla, El General de Terraba, Cariblanco de Sarapiqui, Turrialba, Guápilas, and Juna Viñas, Costa Rica; habits).—Dabbene, Orn. Argent., 1910, 247 (Missiones); Bol. Soc. Physis Buenos Aires, i, 1913, 303 (Missiones).—Hellmayr, Nov. Zool., xvii, 1910, 413 (Santa Isabel, Rio Preto, Brazil); xxviii, 1921, 185; (revision d'Orbigny collection).—Brabourne and Chubb, Birds South Amer., i, 1912, 71.—Bertoni, Anal. Soc. Cient. Argentina, lxxv, 1913, 80; Fauna Paraguaya, 1913, 43 (upper Río Paraná).—Chubb, Birds Brit. Guiana, ii, 1916, 262 (habits).—Menegaux, Rev. Franç. d'orn. 1918, 289 (Villa Lutetia, Misiones).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Canal Zone; listed).—Naumburg, Auk, xliii, 1926, 487 (winter, Peru, Bolivia, Ecuador, Paraguay), 491 part (breeds from Central States and South Carolina to Peru, Bolivia, and Paraguay).—Snethlage, Journ. für Orn., lxxvi, 1928, 554 (breeding season, var. South America countries), 572 (eggs), 676 (breeding habits, ne. Brazil).—Gliesch, Egatea, xv, 1930, 283 (Rio Grande do Sul, Brazil).—

Liebermann, El Hornero, vi, 1935, 89 (Argentina, migr.).—Wetmore, Smiths. Misc. Coll., cvi, No. 1, 1946, 25 (Pearl Islands, Panama).

Elanoides forficatus forficatus Bertoni, El Hornero, iii, 1924, 279 (Puerto Bertoni, Paraguay).

Genus LEPTODON Sundevall

Cymindis (not of Latreille, 1806) Dumont, Dict. Sci. Nat., i, 1816, Suppl., 89. (Type, by monotypy, *Falco cayennensis* Gmelin.)

Cymindis Cuvier, Règne Anim., i, 1817 (publ. 1816) 319, in text.

Cymindes (emendation) Fleming, Philos.-Zool., ii, 1822, 234.

Cymindus (emendation) Haldeman, Proc. Acad. Nat. Sci. Philadelphia, i, 1842, 191.

Cymendis (emendation) d'Orbigny, *in* La Sagra, Hist. Nat. Cuba, Ois., 1839, 30.

Leptodon Sundevall, Vet.-Akad. Handl., 1835 (1836), 114. (Type, by monotypy, *Falco cayennensis* Gmelin (p. 267 but not p. 263)=*Falco palliatus* "Max." Temminck.)

Odontriorchis Kaup, Classif. Säugeth. und Vögel, 1844, 124. (Type, by monotypy, *Falco cayennensis* Gmelin (p. 267 but not p. 263)=*Falco palliatus* "Max." Temminck.)

Odontotriorchis (emendation) Agassiz, Index Zool., 1846, 256.

Odonthriorchis (emendation) Bonaparte, Rev. et Mag. de Zool., sér. 2, vi, 1854, 534.

Micraëtus Bertoni, Aves Nuevas Paraguay, 1901, 156. (Type, by original designation, *M. holmbergianus* Bertoni=*Falco palliatus* Maximilian.)

Medium-sized Perninae (wing about 283–346 mm.) with tumid cere, oblique, slitlike nostril, distinctly rounded tail, feathered lores, and with the bill relatively rather small, only moderately hooked, not compressed, the tomia distinctly "toothed" and notched.

Bill moderate in size, swollen laterally, moderately (not conspicuously) hooked; culmen (chord) much shorter than tarsus (about as long as outer toe), strongly and regularly decurved from base, the tip of maxilla produced into a moderate-sized or rather small unguis; gonys moderately convex; maxillary tomium with a distinct postunguinal angular projection or "tooth," posterior to which the tomium is more or less irregular, rather deeply incised a little posterior to the middle; mandibular tomium with two distinct angular subterminal angular projections, the tip of mandible obliquely truncate; cere tumid, rather narrow, its upper outline ascending proximally, the anterior outline faintly convex in front of nostril, concave for lower portion; nostril narrow (almost slitlike), oblique, overhung by tumid membrane, its anterior (upper) end touching edge of cere. Wing long, broad, and rounded, the longest primaries exceeding proximal secondaries by not more than one-sixth of the length of wing; third to fifth primaries (from outside) longest, the first shorter than seventh, sometimes shorter than ninth; secondaries much developed, broad, the longest proximal ones reaching beyond the tip of the outermost primary. Tail rather long (about two-thirds as long as wing), distinctly rounded, the rectrices broad. Tarsus robust, about one-eighth as long as wing,

the upper portion feathered for from one-third to more than half its length (except behind), the unfeathered portion covered with rather hexagonal scales, these smaller on lower portion of acrotarsium; middle toe about as long as tarsus, or slightly shorter, the outer toe longer than the inner, reaching (without claw) to about the antepenultimate phalanx of middle toe; hallux about as long as outer toe or slightly shorter; toes, like tarsus, robust, their upper surface with a continuous row of large, transverse scutella; claws moderate in size and curvature, moderately acute, very broad, slightly hollowed beneath, their edges sharp and prominent.

Plumage and coloration.—Plumage in general soft and full, the feathers of pileum and nape sublanceolate, rather elongated, especially on nape, those of underparts blended, normal (not broad and subtruncate, as in *Chondrohierax*); secondaries large, the longest proximal ones reaching nearly to tips of longest primaries; third to fifth primary longest, the first shorter than seventh, sometimes shorter than ninth; inner webs of outer four to six primaries shallowly sinuated; loral region unfeathered but uniformly covered with short bristles, these larger and antrorse along anterior margin; eyelids with small lashes. Adults dark bluish gray above, the head and neck paler bluish gray, fading into white on throat; underparts plain white; tail black, tipped with white and crossed by three bands of bluish gray. Young with head and neck whitish, the pileum more or less spotted with blackish brown, upperparts dusky brown, tail brownish gray to brownish white, crossed by three bands of black, underparts plain white. (There is a dark phase, in which the young have the underparts striped with blackish and the head and neck, except throat, uniform blackish.)

Range.—Continental Tropical America. (One species within the range of this paper.)

Although by many authorities merged with *Chondrohierax*, *Odontriorchis* seems more nearly related to the African genus *Aviceda;* [57] in fact, there is little difference between *Odontriorchis* and *Aviceda* beyond the relatively longer primaries and more rounded tail of the former.

KEY TO THE SPECIES OF LEPTODON

a. Tail with a very broad ashy white median band (about 70–80 mm. wide) and broadly tipped with ashy white---------- **L. forbesi** (extralimital [58])

[57] **Aviceda** Swainson, Classif. Birds. i, 1836, 300 (diagnosis; no included species). Type, by subsequent designation, *Aviceda cuculoides* Swainson.

[58] **Odontriorchis forbesi** Swann, Synop. Accip., ed. 2, 1922, 159 (Pernambuco, Brazil). According to Hellmayr (Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 456–457) the unique type of *forbesi* is merely an aberrant *palliatus* and *forbesi* is not a valid form. *Cf.* Peters, Check-list Birds of World, i, 1931, 199, for further discussion.

aa. Tail without a very broad ashy white median band, but with three narrower ashy bands (one basal) and tipped with the same-- **L. cayanensis** (p. 95)
b. Upperparts dark grayish---------- adults
bb. Upperparts dark brownish----------
c. Underparts with dark brown streaks---------- juvenal (dark phase)
cc. Underparts pure white, not streaked---------- juvenal (light phase)

FIGURE 8.—*Leptodon cayanensis.*

LEPTODON CAYANENSIS (Latham)

CAYENNE KITE

Adult (sexes alike).—Forehead, crown, occiput, nape, cheeks, auriculars, and sides of neck varying from gull gray to slate-gray, becoming darker on the occiput and paling to light gull gray to dark gull gray on the sides of the neck, cheeks, and auriculars; back, rump, upper wing coverts, upper tail coverts, scapulars, interscapulars, and remiges dark plumbeous to blackish plumbeous, darkening to plum-

beous-black on the interscapulars, lower back, rump, and upper tail coverts; the upper tail coverts variable, sometimes barred with whitish, sometimes with white spots, sometimes unbarred, uniform plumbeous-black; the remiges dark plumbeous barred with dusky neutral gray, the darker bars (dusky neutral gray) narrower than the lighter interspaces except on the outermost primaries where the reverse is true; rectrices plumbeous-black to black with two or three narrow (less than 15 mm. on median rectrices, increasing width to 30 mm., on lateral (outermost) rectrices) whitish or grayish-white bars, and tipped with whitish; extreme basal portion of rectrices white; chin and throat white, sometimes tinged with deep gull gray; tibiae mottled with slate; rest of underparts pure white; axillars black, under wing coverts mixed blackish and grayish white; occasionally axillars and under wing coverts pure white[59]; iris dark blue-gray to blue-black; cere, edge of gape, mandibular and maxillary rami, and facial skin blue-gray; bill black, claws black, feet blue-gray.

Subadult.—Similar to the adult, but with no grayish on the upper throat or chin, the entire underparts immaculate white; iris reddish or reddish brown; tarsi and toes yellowish as in juvenal birds.

Juvenal (light phase).—Forehead, a broad superciliary band on each side, nape, sides of head (except for a black streak immediately over and behind the eye), sides of neck, anterior interscapulars, and entire underparts, including the under wing and under tail coverts, creamy white; crown patch, including, in some birds, the occiput as well, fuscous-black to black; interscapulars, back, rump, upper wing and tail coverts fuscous-black to black; the upper wing coverts and interscapulars narrowly tipped with brownish (varying in different specimens from pale wood brown to army brown); the anterior of the dark interscapulars edged with whitish; the upper tail coverts basally grayish and tipped with army brown; remiges (above) fuscous barred with black, the black bars broad on the primaries (12–15 mm. wide) and narrow on the secondaries (2.5–6 mm. wide); the fuscous areas grayish below, remiges tipped with whitish; rectrices drab with three broad fuscous-black or black bands, the most proximal of the three being the brownest, the other two blacker; rectrices narrowly tipped with whitish.

Juvenal (dark phase).—Entire head (except bare areas as the lores and eyelids), chin, throat, upper breast, lesser upper wing coverts, interscapulars, and scapulars black, sometimes with a distinct gloss, the lesser upper wing coverts sometimes with a fuscous tinge; rest of upper wing coverts, remiges, back, rump, and upper tail coverts fuscous, the middle upper wing coverts tipped with army brown; the remiges tipped with avellaneous to wood brown; otherwise remiges as

[59] Cf. Chubb, Birds Brit. Guiana, i, 1916, 269.

in light phase; tail as in light phase (one specimen, however, with four instead of three dark bands); lower breast, abdomen, sides, flanks, thighs, and under tail coverts white very heavily streaked with fuscous black and black, the streaks, caused by large dark centers to the feathers, largest and most pronounced on the breast and upper abdomen, where the blackish far outweighs the white; the lower abdomen and under tail coverts sometimes almost free from dark markings; under wing coverts mottled white and fuscous; iris "hazel" in one specimen, "orange brown" in another; bill black, cere, bare lores, and mandibular rami rich "gamboge" yellow; feet rich "gamboge" yellow.[60]

There has been some question, caused wholly by lack of information, as to whether both phases do really appear in the first pennaceous plumage; if they do, as I suspect, then the plumages here called juvenal are both correctly allocated. The only description known to me of a specimen molting from natal down into pennaceous feathering is of a bird in the light phase. Gurney [61] has described this specimen, which agrees with the present light-phase juvenal plumage.

Natal down.—Apparently unknown.

Adult male.—Wing 290–338 (309.8); tail 208–250 (227.6); culmen from cere 22.5–25 (24); tarsus 47–51 (49); middle toe without claw 35–42.5 (40.6 mm.).[62]

Adult female.—Wing 303–338 (314.1); tail 220–263 (236); culmen from cere 22.5–26 (24.3); tarsus 46–54 (49.8); middle toe without claw 34–42 (37.6 mm.).[63]

Range.—Tropical Mexico (from Tampico, Tamaulipas, Vera Cruz, Oaxaca, and Yucatán) south through Central America to Colombia, Venezuela, Trinidad, and the Guianas, to southern Brazil, Paraguay, northern Argentina (Chaco and Upper Paraná, Misiones), Bolivia (Río Surutu) and to the Upper Río Ucayali, Peru; everywhere resident chiefly in dense jungle near water.

Type locality.—Bahia, Brazil.

Falco cayennensis Gmelin, Syst. Nat., i, pt. 1, 1788, 269, not of p. 263 which= *Pandion haliaetus carolinensis* (Cayenne; based on Cayenne Falcon, Latham, Syn., i, pt. 1, 59, No. 40; habitat in Cayenne).—Daudin, Traité d'Orn., ii, 1800, 74 (not of p. 64).—Vieillot, Nouv. Dict. Hist. Nat., iii, 1816, 161.—Spix, Av. Bras., i, 1824, 13, [pl. viii *c*] (Bahia).

Falco cayanensis Latham, Index Orn., i, 1790, 28.—Shaw, Gen. Zool., vii, 1809,

[60] Gurney (Ibis, 1880, 322–329) describes a variation of the dark phase in which there is a rufescent nuchal collar, as figured by Temminck (Planches Col., pl. 270).

[61] Ibis, 1880, 322–329.

[62] Nine specimens from Costa Rica, Panama, British Guiana, Brazil, and Bolivia.

[63] Ten specimens from El Salvador, Panama, Colombia, British Guiana, and Brazil

160.—Temminck, Planches Col., i, 1824, pl. 270, and text.—Temminck and Laugier, Rec. Planches Col., i, livr. 46, 1824, pl. 270.

Cymindis cayennensis Cuvier, Règne Anim., i, 1817, 319.—Stephens, *in* Shaw's Gen. Zool., viii, pt. 2, 1826, 23 (Cayenne).—Lafresnaye, Mag. Zool., iv, 1834, col. 2, pl. 23 (crit.).—Moore, Proc. Zool. Soc. London, 1859, 52 (Honduras).—Sclater and Salvin, Ibis, 1859, 219 (Honduras); 1868, 629 (San Esteban, Venezuela); 1870, 838 (coast Honduras); 1873, 303 (Upper Río Ucayali, e. Peru).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 317 (Panama); ix, 1868, 134 (Gulf of Nicoya, Costa Rica).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Finsch, Proc. Zool. Soc. London, 1870, 556 (Trinidad).—Salvin, Proc. Zool. Soc. London, 1870, 216 (Bugaba, Veraguas, Panama).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 53 (Brazil).—Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil).

Cymindis cayanensis Lesson, Traité d'Orn., 1831, 55.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 47 (Pará, Brazil.—Bonaparte, Consp. Gen. Av., i, 1850, 20.—Gray, Hand-list, i, 1869, 27, No. 252.—Sclater, Proc. Zool. Soc. London, 1860, 289 (Babahoyo, w. Ecuador).—Schlegel, Mus. Pays-Bas, ii, No. 8, livr. 2, 1863, 9 (monogr.); No. 36, livr. 10, 1873, 136.—Léotaud, Ois. Trinidad, 1866, 34.—Sclater and Salvin, Proc. Zool. Soc. London, 1866, 198 (upper Río Ucayali, e. Peru); 1867, 590 (Amazonia).—Pelzeln, Orn. Bras., Abth. 1, 1868, 5; Abth. 4, 1870, 398.

Cymindis cayenensis Gray, Hand-list, i, 1869, 27, No. 252.—Sclater and Salvin, Nom. Av. Neotr., 1873, 122.—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 42 (Santa Efigenia, Oaxaca; fresh colors of unfeathered parts).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 71 (Trinidad).

Cymindis cajanensis Burmeister, Syst. Übers. Th. Bras., ii, 1856, 107.

Astur cayennensis Spix, Av. Bras., i, 1824, pl. viii c.

Buteo cayennensis Lesson, Man. d'Orn., i, 1828, 103.

Pernis (Odontriorchis) cayanensis Kaup, Mus. Senckenb., iii, 1845, 262 (South America).

Pernis cayennensis Kaup, Isis, 1847, 370, 373, 381; *in* Jardine's Contr. Orn., 1850, 78.

Pernis cayanensis Kaup, Isis, 1847, 346 (monogr.).

Odontriorchis cayanensis Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 736.—Bonaparte, Rev. Mag. Zool., vi, 1854, 534.

Odontriorchis cayennensis Cabanis, Journ. für Orn., 1874, 229 (Brazil).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 265 (South America; Brazil).—Bertoni, Fauna Paraguaya, 1913, 43 (upper Rio Paraná).

Leptodon cayennensis Sharpe, Cat. Birds Brit. Mus., i, 1874, 333 (Pará, Brazil; Caracas, Venezuela; Demerara, British Guiana; "West Indies"; Honduras).—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 153 (monogr.).—Gurney, Ibis, 1880, 322 [=329], in text (changes and variations of plumage); List Diurn. Birds Prey, 1884, 88; Cat. Birds Prey, 1894, 27.—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Babahoyo, w. Ecuador); Journ. für Orn., 1887, 123 (Paraguay); Nov. Zool., xv, 1908, 293 (Cayenne).—Salvin, Ibis, 1886, 77 (Roraima, Brit. Guiana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Pozo Azul de Pirris and Birris de Cartago, Costa Rica).—Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 208; v, 1893, 148 (Chapada, Mattogrosso, Brazil).—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Beristain and Laurencio, Mem. Rev. Soc. Cient "Antonio Alzate," vii, 1894, 224 (Sotavento and Tehuantepec, Mexico).—Holmberg, Segundo Censo Argent., i, Aves, 1898, 508.—Ihering, Rev. Mus. Paulista, iii, 1899, 362 (São Paulo,

s. Brazil); iv, 1900, 163 (Cantogallo, s. Brazil); vi, 1904, 339 (Paraguay).—Sharpe, Hand-list, i, 1899, 269.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 100 (Tampico, Tamaulipas; Tlalcotalpam and Mirador, Veracruz; Santa Efigenia, Cacoprieto and Tapantepec, Oaxaca; Tonalá, Chiapas; Izalam, Yucatán; Orange Walk and Cayo, British Honduras; Escuintla, Guatemala; San Pedro, Honduras; San Emilio and Lake Nicaragua, Nicaragua; Nicoya, Pozo Azul, Birris, and Talamanca, Costa Rica; Volcán de Chiriquí, Bugaba, and Lion Hill, Panama).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 114 (Caicara, Venezuela; fresh colors of unfeathered parts).—Hartert, Nov. Zool., ix, 1902, 605 (Pulún, nw. Ecuador).—Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 571 (crit.).—Ihering and Ihering, Av. Brazil, 1907, 97 (Rio Grande do Sul, São Paulo, Bahia, Minas, Amazonas, and Pará).—Carriker, Ann. Carnegie Mus., vi, 1910, 468 (Pozo Azul de Pirris and Boruca, Costa Rica).—Dabbene, Orn. Argent., 1910, 248 (Chaco; upper Río Paraná).—Reiser, Denkw. Mat. Nat. Akad. Wien, 1910, 90 (Paranagua, etc., ne. Brazil).—Reichenow, Die Vögel, i, 1913, 401.—Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 346 (Caicara, Venezuela; color of unfeathered parts).—Schüz, Journ. für Orn., lxxv, 1927, 99, in text (powder downs).—Holmberg, El Hornero, vii, 1939, 159 (Central America to Chaco, n. Argentina).

Leptodon cayanensis Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 131 (Masinga, Colombia).

Regerrhinus cayennensis Taczanowski, Orn. Perou, i, 1884, 144.

Asturina cyanopus Vieillot, Nouv. Dict. Hist. Nat., iii, 1816, 41 (based on "*Falco cayanensis*, Lath., Pl. Enl. de Buff., No. 473"); Encycl. Méth., iii, 1823, 126 (South America).—Bonnaterre, Encycl. Méth., iii, 1823, 261.

Sparvius monachus Vieillot, Nouv. Dict. Hist. Nat., new ed., x, 1817, 341 ("Bresil"; imm., coll. C. J. Temminck).

Falco palliatus "P. Max." Temminck, Planches Col., livr. 35, 1823, pl. 204 and text (Rio Peruhype, Brazil; type now in coll. Amer. Mus. Nat. Hist.).—Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 148.

Buteo palliatus Lesson, Man. d'Orn., i, 1828, 103.

Leptodon palliatus Brabourne and Chubb, Birds South Amer., i, 1912, 71 (Guiana; e. Peru; se. Brazil).—Bertoni, Fauna Paraguaya, 1913, 80.—Dabbene, Bol. Soc. Physis Buenos Aires, i, 1913, 247; i, 1914, 304 (Paraguay; Missiones, Argentina); ii, 1916, 291 (Loreto, Missiones).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 250 (Baudo, Colombia).—Swann, Synopt. List Accip., pt. 3, 1920, 101.—Halliman, Auk, xli, 1924, 311 (Gatun, Panama).—Dabbene, El Hornero, iii, 1926, 394, in text (Misiones, Argentina).

Chondrohierax palliatus Chubb, Birds Brit. Guiana, i, 1916, 288 (habits).

Odontriorchis palliatus Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 144 (Bonda and Cinto, Santa Marta, Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 138 (distr., Ecuador).—Peters, Check-list Birds of World, i, 1931, 198 (distr.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 162 (distr.; Guatemala); Bull. Mus. Comp. Zool., lxxii, No. 9, 1932, 312 (Permé; Obaldia; Panama); lxxviii, 1935, 298 (Panama; very local in swamps and marshes).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras; San Pedros Mountains).—Belcher and Smooker, Ibis, 1934, 589 (Trinidad; doubtful).—Roberts, Tropical Agr., xi, No. 4, 1934, 5 (Trinidad).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 42 (Paracoté, Azuero Peninsula, Panama; spec.).—Dugand, Rev. Acad. Colomb., iii, 1940, 217 (Colombia; a woodland bird, feeds on other

birds).—Stresemann, Arch. für Naturg., n. f., ix, 1940, 144, in text (feeds on wasps).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 110 (Lower Amazonia; Rio Tapajóz, Pinhay, and Tauary; spec.).—del Campo, Anales Inst. Biol., xiii, 1942, 701 (Chiapas; spec.).

Odontriorchis palliatus mexicanus Swann, Synop. Accip., pt. 3, 1922, 159 (Tampico, Tamaulipas; coll. Brit. Mus.); Monogr. Birds Prey, pt. 13, 1935, 258.—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 26 (Mexico; Tabasco, 15 km. n. of Reforma; crit.; meas.).

Odontriorchis palliatus guianensis Swann, Synop. Accip., pt. 3, 1922, 159 (Paramaribo, Surinam; coll. Tring Mus.); Monogr. Birds Prey, pt. 13, 1935, 257.—Pinto, Rev. Mus. Paulista, xxii, 1938, 62 (distr.).

Odontriorchis palliatus palliatus Swann, Synop. Accip., 1922, 158; Monogr. Birds Prey, pt. 12, 1934, 256.—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 456 (Piauhy, Brazil; crit.).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 112 (distr.; Matto Grosso, Brazil).—[Anonymous], El Hornero, vi, 1935, 183 (distr.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 394 (syn.; Argentine records; distr.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 62 (distr.); xxiv, 1940, 229, in text (Pernambuco); xxv, 1942, 12 (Matto Grosso, Santo Antonio; spec.).

? *Odontriorchis forbesi* Swann, Synop. Accip., ed. 2, 1922, 159 (Pernambuco, Brazil; descr.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 63 (distr.); xxiv, 1940, 229 (Pernambuco).

Cymindis buteonides Lesson, Traité d'Orn., 1830, 55 (new name for *Falco palliatus* Temminck; Brazil and Guiana).

Micractus holmbergianus Bertoni, Aves Nuevas Paraguay, 1901, 156 (see Ihering, Rev. Mus. Paulista, vi, 1904, 339).

Genus CHONDROHIERAX Lesson

Chondrohierax Lesson, Écho du Monde Savant, sér. 2, vii, 1843, 61. (Type, by monotypy, *Daedalion erythrofrons* Lesson = *Falco uncinatus* Temminck.)

Regerhinus Kaup, Mus. Senckenb., iii, Heft 3, 1845, 255, 262. (New name for *Cymindis* Latreille, but on p. 262 has as type, by monotypy, *Falco uncinatus* "Ill[iger]"; also in Jardine's Contr. Orn., 1850, 77.)

Regerrhinus (emendation) Saunders, Zool. Rec., xvii, 1881, Aves, 10, 43.

Medium-sized Perninae (wing about 246-324 mm.) with tumid cere, oblique, slitlike nostrils, slightly rounded tail, naked lores, and with the bill relatively very large, conspicuously hooked and compressed, the tomia without "teeth" or identations.

Bill relatively very large, much compressed, and conspicuously hooked; culmen nearly (sometimes quite) as long as tarsus, in one species longer, forming a curve of one-fourth to nearly one-half the circumference of a circle, strongly and regularly decurved, the tip of maxilla produced into a very long unguis; depth of bill at anterior margin of cere equal to about twice its width at same point and to less than half the length (curve) of culmen; maxillary tomium nearly straight posterior to base of unguis, without distinct, if any, sinuations or irregularities of outline; mandibular tomium arched posterior to middle portion, the tip of mandible obliquely truncate; gonys nearly straight, less than one-third as long as culmen; cere relatively very

short, mostly covered on top by the recurved antrorse feathers of frontal antiae, its anterior outline slightly convex above, concave below; nostril narrow (almost slitlike); oblique, situated rather below middle of cere, its anterior end touching margin of cere. Wing long and broad, the longest primary exceeding distal secondary by about one-fifth the length of wing; fourth, fifth, or sixth primary (from outside) longest, the first (outermost) shorter than tenth; five or six outer primaries with inner webs faintly sinuated. Tail much shorter than wing, slightly rounded, the retrices broad, with rounded tips. Tarsus about one-eighth as long as wing, usually about as long as culmen, sometimes decidedly shorter, occasionally slightly longer, relatively thick but compressed, nearly the upper half feathered (except on planta tarsi), the bare portion covered with hexagonal, mostly longitudinal, scales, these larger and more quadrate on acrotarsium; middle toe shorter than tarsus; lateral toes much shorter than middle toe, the outer and inner toes slightly unequal, hallux shorter than inner toe but stouter; all the toes compressed, their upper surface with transverse scutella nearly if not quite to base; claws rather long, moderately curved, compressed, moderately acute, that of middle claw longest (about as long as hallux) and with inner edge much produced; no web between basal phalanges of outer and middle toes.

Plumage and coloration.—Plumage in general full and soft; contour feathers of underparts very broad with nearly truncate tips, those of pileum soft and blended, becoming longer, broader, and more truncate on nape; remiges and rectrices long and broad, of soft texture, the secondaries about three-fourths as long as longest primaries; loral region, and adjacent parts of superciliary and suborbital regions wholly nude, except a narrow line of short bristlelike feathers extending from anterior angle of eye to anterolateral edge of frontal feathering, the latter extending as far forward as to almost cover top of cere; malar antia with rather large radiating bristles, and eyelids with small lashes; aftershafts of contour feathers better developed than in *Odontriorchis*. Coloration exceedingly variable, but adults usually mostly plain gray or blackish (the underparts sometimes narrowly barred with paler), the tail black crossed by one or two bands of grayish and tipped with same, the young with color of upperparts more or less broken by paler tips or margins to the feathers (the hind neck sometimes with a more or less distinct white or buffy collar), the underparts barred with brown or rufous and white or buffy, the tail with four (instead of one or two) paler bands.

Range.—Continental Tropical America; Cuba. (Three species.)

"Although often considered as congeneric with *Odontriorchis*, this genus is exceedingly distinct, so much so, in fact, that it is hard to understand whey they should ever have been combined. The form

of the bill is conspicuously different and strikingly distinctive; the feet much weaker, with toes and claws more compressed. The feathers of the underparts are much broader and with truncated tips, and there are numerous other differences." (R. R.)

KEY TO THE SPECIES AND SUBSPECIES OF CHONDROHIERAX

a. Upper mandible pale yellowish white, inclining to bluish horn at base; feathers of upperparts with concealed white bars on their bases (Cuba).
C. wilsonii (p. 111)

aa. Upper mandible black; no concealed white bars on feathers of upperparts.
b. Size larger; wing 265–301 mm. in males; 268–321 mm. in females.
c. Bill smaller; culmen from cere less than 45 mm.
d. Plumage gray or dark gray, barred beneath with gray or dark gray and white.
e. Ground color of underparts dark blackish plumbeous, white bars wide (about 5 mm.) (central and eastern Mexico).
C. u. aquilonis ad. ♂ (p. 109)
ee. Ground color of underparts paler, deep plumbeous; white bars narrow (1.5–3 mm.) (western Mexico to Argentina).
C. u. uncinatus ad. ♂ (p. 102)
dd. Plumage dark brown or blackish brown above, barred beneath with brown on white ground color or almost unbarred white.
e. Underparts heavily barred---------- **C. u. uncinatus** ad. ♀ (p. 102)
C. u. aquilonis ad. ♀ (p. 109)
ee. Underparts nearly unbarred white- **C. u. uncinatus** juv. (p. 104)
C. u. aquilonis juv. (p. 109)
cc. Bill very large, culmen 50 mm-- **C. u. immanis** ad. ♀ [64] (extralimital)
bb. Size smaller; wing 250 mm., in male; 262–266 mm. in females (Grenada)---------- **C. u. mirus** (p. 110)

CHONDROHIERAX UNCINATUS UNCINATUS (Temminck)

HOOK-BILLED KITE

Adult male.—GRAY PHASE: Above dark plumbeous, or plumbeous-black, becoming fuscous, or fuscous-black, in worn plumage; the occiput with much basal white and the upper tail coverts tipped and banded with white; sizes of face, ear coverts, and chin deep to dark plumbeous; under tail coverts white to ochraceous-buff, uniform, or with traces of grayish bars occasionally distinctly banded with plumbeous. Remainder of underparts deep plumbeous (usually paler than the upperparts) barred with narrow bands of white, buff, or cinnamon-buff, which are variable in width, and are usually narrowly bordered by fuscous or fuscous-black; axillaries and under wing coverts uniform deep plumbeous, barred with white or buff; primaries banded (about equally) with white and plumbeous-black below, dark plumbeous and

[64] **Chondrohierax uncinatus immanis** Friedmann, Journ. Washington Acad. Sci. xxiv, 1934, 315 (Ambata Oriente, Ecuador).

plumbeous-black above, the outer webs often uniform plumbeous-black; secondaries uniform dark plumbeous, occasionally with traces of lighter bars below; tail plumbeous-black to black, white basally, narrowly tipped with white or deep mouse gray, and crossed by two bands (the anterior one the narrower) of white, or pinkish buff, shading to deep mouse gray posteriorly and toward the outer webs, which are often uniform mouse gray above; bill pale yellow-green with dusky tomium and black maxilla; iris white; feet orange-yellow, claws black; cere, gape, and facial skin greenish yellow; eye-ring and bristled loral streaked pea green; supra loral skin bright yellow. *Unbarred variety:* Similar to the above description, but lacking entirely or partially

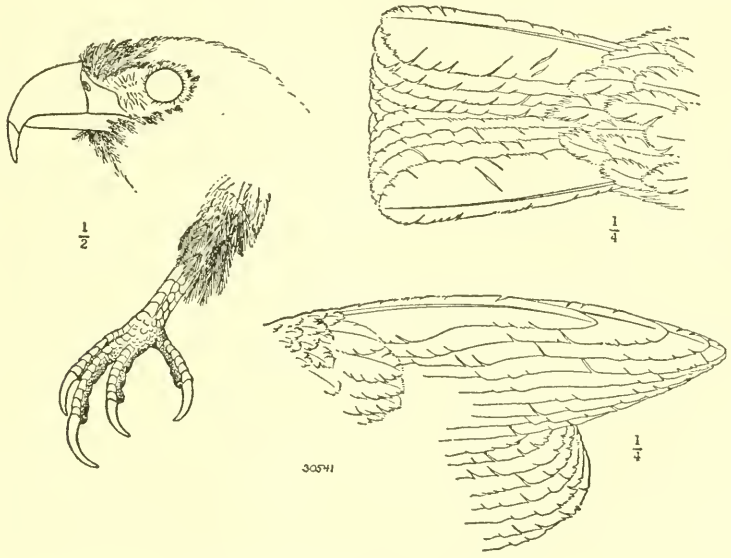

FIGURE 9.—*Chondrohierax uncinatus.*

the white barring on the underparts. *Cinnamon-barred variety:* Similar to the above description, but with the gray barring of the underparts more or less replaced by cinnamon-brown or russet and with more or less indication of a cinnamon or ochraceous-tawny nuchal collar.

MELANISTIC PHASE: Entire plumage deep fuscous-black, with a slight bronze-purple-green gloss; the occiput with much basal white; tail narrowly tipped with white and crossed by a single broad white band; bill black above, dirty olive below, tipped with black; cere and eyelids yellowish green; skin in front of eye blue-green, spot above inner angle of eye orange-yellow; iris white; feet gamboge.

Adult female.—BROWN PHASE: Forehead, auriculars, and sometimes the chin deep gull gray to deep neutral gray, or dark plumbeous;

crown and occiput fuscous to fuscous-black, with concealed white bases; a broad, continuous nuchal collar of ochraceous-buff, tawny, or amber brown, occasionally extending to the ear coverts; remainder of upperparts fuscous to fuscous-black, darker anteriorly, often with slightly paler (sometimes russet) edges to the feathers; upper tail coverts tipped and barred with white or pale gray; entire underparts, including under wing coverts, white, or ochraceous-white (more ochraceous on the under tail coverts), with broad nearly equal transverse bars of ochraceous-tawny, cinnamon-brown, russet or amber-brown, narrowly edged with fuscous or fuscous-black (occasionally this edging is absent, and sometimes it widens to spread over almost the entire bar); outer primaries pale fuscous above, white, or pale mouse gray below, cream color, or pinkish buff toward the bases of the inner webs, and distally banded with fuscous, or fuscous-black (the bands being about one-half or one-third the width of the lighter interspaces); inner primaries chestnut, or russet, shading to creamy or pinkish buff toward the bases of their inner webs, and distally banded with fuscous; secondaries light fuscous above, gull gray below, white, or cream color toward the bases of the inner webs, and somewhat indistinctly banded with dark fuscous; tail fuscous-black, to black, white basally, narrowly tipped with white or pale hair brown, and crossed by two bands of hair brown or mouse gray, shading to white or pinkish buff on the inner webs, especially anteriorly; bill black, yellowish olive below; lores olive orange; sides of cere olive-yellow; spot above eye orange; skin in front of eye grass green; iris white; feet gamboge. *Gray-backed variety:* Like the above, but with the upperparts plumbeous-black to sooty black, and with a tendency toward loss of the tawny nuchal collar. Females in this plumage variation are very like the cinnamon-barred variation of the gray phase of the male.

Melanistic phase: Similar to that of the male.

Immature.—No definite immature plumage; there is a gradual, and probably prolonged, molt from juvenal to adult, which appears to commence anteriorly, as well as on the underparts, and to end with the tail.

Juvenal (sexes alike).—Forehead, crown, and occiput fuscous-black with white bases to the feathers; a broad, white, cream, or pinkish buff nuchal collar, continuous with the white underparts; remainder of upperparts fuscous (shading to fuscous-black on the neck) with narrow cinnamon, tawny, or russet margins to the feathers; upper tail coverts tipped and barred with white, or pinkish buff; entire underparts white, or buff, shading to pinkish buff on the thighs and

under tail coverts and either uniform, or distally barred with hair brown, olive-brown, or fuscous (the number and width of these bars varies considerably); outer primaries fuscous above, creamy white toward the bases of the inner webs, and pallid neutral gray below, barred with fuscous-black; inner primaries with more or less orange-cinnamon to cinnamon-rufous on both webs; secondaries fuscous above, with some white, or buff, on the inner webs, mouse gray below, and barred with darker fuscous; tail fuscous-black, basally white, narrowly tipped with white, cream, buff, or pinkish cinnamon, and crossed with three or four pale bands, which are uniform hair brown to light fuscous on the central pair and irregularly marked with white, cream, buff, or pinkish cinnamon on the remainder.

MELANISTIC PHASE: Forehead, crown, and occiput fuscous-black to sooty black; remainder of upperparts fuscous to fuscous-black, the feathers with concealed white bars or spots near their bases; upper tail coverts tipped and widely barred with white; entire underparts fuscous to fuscous black, with concealed white bars on the bases of the feathers, the under tail coverts tipped also with white, or buff; wings fuscous-black crossed by three or four paler bars which are white basally, fuscous above, pale neutral gray below distally; tail fuscous-black to sooty black, white basally, tipped with white, and crossed by two bands of white, shaded, or marked (especially on the distal band) with hair brown or mouse gray (that is, the tail pattern like that of the nonmelanistic adult); iris brown, entire facial area, cere, mandibular rami, tarsi, and feet yellow; claws and bill black.

Natal down.—Not described.

Adult male (26 specimens) [65]: Wing 265–301 (285.8); tail 173–210 (191.1); culmen from the cere, 27.0–35.5 (31.3), one 42.0; tarsus, 32.0–37.0 (35.1); middle toe, without claw, 28.0–35.0 (31.1 mm.).

[65] Twenty-five males:

Locality	Number of specimens	Wing	Culmen from cere
Guatemala	3	281–299 (287.5)	30.0–33.0 (31.2)
Nicaragua	1	290	33.0.
Panama	1	299	30.5.
Venezuela	5	265–294 (280.4)	29.0–30.5 (29.8).
Surinam	3	272–291 (283.0)	28.5–30.5 (29.7).
Colombia	2	278–292	30.5–34.0.
Ecuador	5	274–289 (284–3)	32.5–35.5 (34.3).
Peru	2	286–298	33.0–33.5.
Brazil	2	275–285	27.0–29.5.
Argentina	1	300	30.0

Adult female (31 specimens) [66]: Wing 268–321 (289.4); tail 191–228 (202.8); culmen from the cere 28.0–37.0 (31.6), one 43.5; tarsus, 31.0–37.0 (33.8), one 28; middle toe, without claw, 28.0–34.0 (30.9 mm.).

Range.—Resident in swamps and marshy areas throughout its range from Guerrero and southern Sinaloa (Cacalotán), Mexico, to Guatemala, Nicaragua, El Salvador (Lake Olomega, Volcán de Santa Ana, Costa Rica, and Panama, south to Venezuela, the Guianas, Colombia, western Ecuador, western, central, and southeastern Peru, to Bolivia (Santa Cruz de la Sierra), northwestern Argentina (Tucumán), Paraguay (Fort Wheeler), and central and southeastern Brazil (Amazonia, Matto Grosso, and São Paulo); local and restricted to the tropical zone throughout its range.

Type locality.—"Vicinity of Rio to the north of Brazil and all of Guiana"; restricted type locality, vicinity of Paramaribo, Surinam, suggested correction Bahia, eastern Brazil (Hellmayr and Conover, 1949, 27).

Falco uncinatus "Illiger" Temminck, Planches Col., livr. 18, 1822, pls. 103, 104, 115, and text ("Vicinity of Rio to the north of Brazil and all of Guiana.").—Maximilian, Beitr. Naturg. Bras., i, 1830, 172 (Rio de Janeiro; Bahia).—Schüz, Journ. für Orn., lxxv, 1927, 99 (powder downs).

Cymindis uncinnatus Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 22 (Brazil).

Cymindis uncinatus Lesson, Man. d'Orn., i, 1828, 91; Traité d'Orn., 1831, 55.—Vigors, Zool. Journ., i, 1824, 337.—Kaup, Classif. Säugeth. und Vögel, 1844, 121.—Gray, Gen. Birds, i, 1845, 25, pl. 9, fig. 7; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 48 (Pará); Hand-list, i, 1869, 28, No. 253—Bonaparte, Consp. Gen. Av., i, 1850, 21.—Burmeister, Syst. Albers. Th. Bras., ii, 1856, 108.—Sclater and Salvin, Proc. Zool. Soc. London, 1859, 219 (Guatemala); 1879, 541 (Medellín, Colombia); Nom. Av. Neotr., 1873, 122.—Schlegel, Mus. Pays-Bas, ii, No. 8, livr. 2, 1863, 8 (monogr.); No. 36, livr. 10, 1873, 136; Revue Accip., 1873, 136.—Léotaud, Ois. Trinidad, 1866, 36.—Pelzeln, Orn. Bras., Abth. 1, 1868, 5.—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 134 (San José, Costa Rica).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Finsch, Proc Zool. Soc. London, 1870, 557 (Trinidad).—Pelzeln, Orn. Bras., Abth. 4, 1870, 398.—Sharpe, Proc. Zool. Soc. London, 1873, 419, pl. 39, figs. 18–20 (changes of plumage).—Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil).

[66] Twenty-nine females:

Locality	Number of specimens	Wing	Culmen from cere
Guatemala	1	289	29.5.
Nicaragua	1	290	32.5.
Costa Rica	1	290	30.0.
Venezuela	6	272–309 (287.8)	29.0–31.5 (29.9).
Surinam	2	285–289	28.0–30.5.
Colombia	10	268–321 (285.0)	28.0–34.5 (31.4).
Ecuador	4	284–303 (290.8)	28.5–38.0 (33.6).
Peru	2	290–305	34.0–34.5.
Brazil	2	293–295	30.0–37.0.

Cymindus unicinatus Sclater and Salvin, Proc. Zool. Soc. London, 1864, 369 (Panama).

Pernis (Regerhinus) uncinatus Kaup, Mus. Senckenb., iii, Heft 3, 1845, 262 (South America).

Pernis uncinatus Kaup, Isis, 1847, 344 (monogr.), 370; *in* Jardine's Contr. Orn., 1850, 77.

Regerhinus uncinatus Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 736.—Bonaparte, Rev. Mag. Zool., vi, 1854, 534.—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 53 (Bogotá, Colombia; Brazil); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 156 (monogr.).—Lawrence, Bull. U. S. Nat. Mus., iv, 1876, 43 (Chihuitan and Santa Efigenia, Tehuantepec, Mexico).—Gurney, Ibis, 1880, 313, in text (color of iris, etc.; synonyms; changes of plumage), 318 (measurements, etc.); List Diurnal Birds Prey, 1884, 88; Cat. Birds Prey, 1894, 26.—Nutting, Proc. U. S. Nat. Mus., v, 1882, 403 (La Palma de Nicoya, Costa Rica).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 102, part (Guatemala; San José, Naranjo, La Palma de Nicoya, and Barranca, Costa Rica; Lion Hill, Panama; s. to Bolivia).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 43 (Peru).—Bangs, Proc. New England Zool. Club, iii, 1902, 21 (Boquete, Chiriquí).—Berlepsch, Nov. Zool., xv, 1908, 293 (Cayenne).—Peters, Auk, xxx, 1913, 371 (Camp Mengel, Quintand Roo).—Reichenow, Die Vögel, 1913, 401.—Schüz, Journ. für Orn., lxxv, 1927, 99 (powder downs).

Regerinus uncinatus Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 145 (Sagoa Island, Bay of Panama; fresh colors of unfeathered parts; crit.).

Regerhinus uncinatus uncinatus Swann, Synopt. List Accip., pt. 3, 1920, 100; Auk, xxxviii, 1921, 363 (3,000 m., Escorial, Venezuela).

Rostrhamus uncinatus Strickland, Orn. Syn., i, 1855, 136.

Leptodon uncinatus Sharpe, Cat. Birds Brit. Mus., i, 1874, 330 (Pará and Bahia, Brazil; Demerara, Brit. Guiana; Trinidad; Venezuela; Bolivia; Central America).—Boucard, Proc. Zool. Soc. London, 1878, 45 (Naranjo, Costa Rica; habits; notes).—Salvin, Ibis, 1886, 77 (Camacusa, Brit. Guiana).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 48 (Chapada, Mattogrosso. Brazil).—Hartert, Nov. Zool., v, 1898, 501 (3,500 feet, Paramba, n. w, Ecuador).—Ihering, Rev. Mus. Paulista, iii, 1899, 362 (Iguape, São Paulo, s. Brazil); vi, 1904, 450 (Rio Jurua, Amazonia).—Sharpe, Hand-list, i, 1899, 269.—Berlepsch and Stolzmann, Ornis, xiii, 1906, 99 (Santa Ana, Peru; crit.).—Ihering and Ihering, Av. Brazil, 1907, 97 (São Paulo; Rio de Janeiro; Goyaz; Mattogrosso; Bahia; Pará; Amazonia).—Carriker, Ann. Carnegie Mus., vi, 1910, 468 (Juan Viñas, Costa Rica; crit.).—Hellmayr, Nov. Zool., xvii, 1910, 413 (Calama, Brazil; crit.).—Brabourne and Chubb, Birds South Amer., i, 1912, 71 (Guiana; Venezuela; Brazil; Bolivia).—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 345 (Caicara and Les Barrancas, Venezuela).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 249 (Río Frío, Colombia).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Canal Zone, Panama; listed).

Leptodon unicinctus (lapsus?) Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 268.—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 71 (Trinidad).

Chondrohierax uncinatus Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 169, in text.—Chubb, Birds Brit. Guiana, i, 1916, 267 (habits).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 39 (Paramaribo, Surinam; crit.).—Chapman, U. S. Nat. Mus. Bull. 117, 1921, 60 (Idma, se. Peru); Bull. Amer.

Mus. Nat. Hist., lv, 1926, 238 (distr.; Ecuador).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (near Gualea, Ecuador, 5,000–6,000 feet).—Swann, Synop. Accip., pt. 3, 1922, 157 (Yucatán to Bolivia and Brazil).—Dabbene, El Hornero, iii, 1926, 394 (genl.; Argentina).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 139 (descr.; habits; Panama).—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 456 (Maranhão, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 112 (crit.; distr.; Matto Grosso, Brazil).—Peters, Check-list Birds of World, i, 1931, 200, part (distr.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 162 (distr.; Guatemala).—Roberts, Tropical Agrc., xi, No. 4, 1934, 5 (Trinidad).—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, lxxxvi, 1934, 371 (Matto Grosso, Brazil; spec.).—Belcher and Smooker, Ibis, 1934, 589 (Trinidad; very rare).—Van Tyne, Univ. Michigan Mus. Zool. Misc. Publ. 27, 1935, 17 (Uaxactum, Petén, Guatemala; spec.; plum.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 398 (syn.; Argentine records; distr.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 63 (distr.); xxiii, 1938, 548 (Amazonas, Brazil; Manacapum; spec.).—Dugand, Rev. Acad. Colomb., iii, 1940, 217 (plum.; Colombia).—Stresemann, Archiv für Naturg., n. f., ix, 1940, 144, fig. 1b (bill).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 110 (Lower Amazonia; Rio Tapajoz; spec.).—Borrero, Caldasia, iv, 1946, 171 (Colombia; Sabana de Bogotá).—Dugand and Borrero, Caldasia, iv, 1946, 139 (Colombia; Leticia; spec.).

Chondrohierax uncinatus uncinatus Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 143 (Bonda, Manatoco, and Chirua, Santa Marta, Colombia; variations of plumage).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 365 (Río Frío, Magdalena, Colombia).—Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 311 (plumages, crit.).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (Panama; very local in swamps and marshes).—Dugand, Caldasia, iii, 1941, 55 (Colombia; near Maicao, Guajira; meas.; crit.)—Traylor. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Campeche: Matamoros; Yucatán: Chichen Itzá).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxiii, No. 1, 1945, 47 (n. Bolivia; Reyes; spec. meas.).

Regerhinus uncinatus uncinatus Swann, Synop. List Accip., 1920, 100; Auk, xxxviii, 1921, 363 (Escorial, Mérida).

Falco vitticaudus Maximilian, Beitr. Naturg. Bras., i, 1830, 178 (se. Brazil; type now in Amer. Mus. Nat. Hist., New York).

Cymindis vitticaudus Pelzeln, Orn. Bras., Abth. 1, 1868, 6; Abth. 4, 1870, 398.

Cymindis cuculoides Swainson, Classif. Birds, i, 1836, 311, fig. 104 (unidentifiable here); ii, 1837, 209 (based on Temminck, Planches Col. 103, 104).

Daedalion erythrofrons Lesson, Écho du Monde Savant, ser. 2, No. 45, Dec. 11, 1842, col. 1061 (San Carlos Centr.-Amerique (=Salvador)).—Menegaux, Articles d'Orn. de R.-P. Lesson, 1913, 13 (reprint of above paper).

Doedalion erythrofrons Lesson, Complement des Oeuvres de Buffon (Levêque) xx, 1847, 173 (forests of San Carlos, on shores of Pacific, Central America).

Regerhinus megarhynchus Bonaparte, Rev. Mag. Zool., vi, 1854, 534.—Hartlaub, Journ. für Orn., 1857, 47 (Sarayacu).—Taczanowski, Proc. Zool. Soc. London, 1874, 550 (Amable María and Soriano, c. Peru; crit.; descr. plumages); Orn. Pérou, i, 1884, 141.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 160 (Bolivia; Peru; monogr.); Proc. U. S. Nat. Mus., iv, 1881, 197.—Gurney, Ibis, 1880, 318, 319, 321, in text, part (crit.; Peru; Bolivia; upper Amazon; Bahia, e. Brazil; measurements); List Diurn. Birds Prey, 1884, 88; Cat. Birds Prey, 1894, 26.—Salvin and Godman, Biol.

Centr.-Amer., Aves, iii, 1901, 102, part (from Guatemala s. to Bolivia and upper Amazon).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 43 (Garita del Sol, Peru).

Regerhinus uncinatus megarhynchus Swann, Synopt. List Accip., pt. 3, 1920, 100 (e. Peru).

Cymindus megarhynchus Gray, Hand-list, i, 1869, 28, No. 254.—Sclater and Salvin, Nom. Av. Neotr., 1873, 122 (upper Amazon).

Cymindis megarhynchus Taczanowski, Proc. Zool. Soc. London, 1879, 242 (Guajango, Peru; crit.; descr.).

Leptodon megarhynchus Sharpe, Cat. Birds Brit. Mus., i, 1874, 332 (Peru; Bolivia).—Sharpe, Hand-list, i, 1899, 269 (Peru).—Lillo, Rev. Letras y Cienc. Soc., iii, 1905, 62 (forests of Tafi Viejo, Tucumán, Argentina).—Dabbene, Orn. Argent., 1910, 248 (Tucumán); Bol. Soc. Physis Buenos Aires, i, 1913, 303 (Tucumán).—Brabourne and Chubb, Birds South Amer., i, 1912, 71 (e. Peru).

Chondrohierax uncinatus megarhynchus Bangs and Noble, Auk, xxxv, 1918, 445 (Bellavista, Peru; crit.).

Chondrohierax megarhynchus Swann, Synop. Accip., pt. 3, 1922, 157 (Bolivia, e. Peru, and Andes of Venezuela).—Dabbene, El Hornero, iii, 1926, 391 (Tucumán, Argentina).—Peters, Check-list Birds of World, i, 1931, 200.—Anonymous, El Hornero, vi, 1935, 184 (Central and South America).—Steullet and Deautier, Obra del Cincuentenario Mus. La Plata, i, 1936, 395 (syn.; Argentine records; distr.).

Cymindis pucherani Leotaud, Ois. Trinidad, 1866, 40 (Trinidad; =blackish phase).—Sclater, Ibis, 1867, 107 (crit.).—Gray, Hand-list, i, 1869, 28, No. 256.—Finsch, Proc. Zool. Soc. London, 1870, 557 (Trinidad; crit.).

Cymindis boliviensis Burmeister, Proc. Zool. Soc. London, 1868 (publ., April 1, 1869), 633 (Santa Cruz de la Sierra, Bolivia).—Gray, Hand-list, i, 1869, 28, No. 257.

CHONDROHIERAX UNCINATUS AQUILONIS Friedmann

Mexican Hook-billed Kite

Adult male.—Similar to the gray phase of *C. u. uncinatus*, but darker, especially on the underparts, which are blackish plumbeous instead of deep plumbeous, and with the white ventral bars broader (about 4–6 mm. wide as against 1.5–3 mm. in *uncinatus*). Melanistic phase not distinguishable from that of the nominate race.

Adult female.—Similar to the darker, russet or amber-brown barred individuals of the brown phase of *C. u. uncinatus*.

Juvenal.—Similar to that of *C. u. uncinatus*.

Natal down.—Not known.

Adult male.—Wing 279–301 (290.9); tail 186–210 (199); culmen from cere 29–42 (35.9); tarsus 32–36 (35); middle toe without claw 28–34.5 (31 mm.) (6 specimens).

Adult female.—Wing 275–307 (292.7); tail 191–214 (204.5); culmen from cere 30.5–43.5 (35.9); tarsus 31–36 (33.2); middle toe without claw 28–34 (30 mm.) (6 specimens).

Range.—Resident in most of Mexico from Tamaulipas to Jalapa, Guanajuato, Jalisco, Oaxaca, Yucatán, and Chiapas (Finca Jalapa).

Type locality.—Tamaulipas, Mexico.

Cymindis uncinatus Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 43 (Chihuitan and Santa Efigenia, Oaxaca; fresh colors of unfeathered parts).

Erythrocnema uncinata Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico: Guanjuato).

Leptodon uncinatus Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Mexico: Sotavento and Tehuantepec).

Regerhinus uncinatus Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 102, part (Buctzotz, Yucatán).

Chondrohierax uncinatus Peters, Check-list Birds of World, i, 1931, 200, part (distr.).—Anonymous, El Hornero, vi, 1935, 184, part (Mexico).

Chondrohierax uncinatus aquilonis Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 314 (orig. descr., distr., Tamaulipas, Mexico).

Chondrohierax uncinatus uncinatus Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 311, part (Mexico; part).—Moore, Condor, xl, 1938, 24, in text (Sinaloa, Cacalotan; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Yucatán; Chichen Itzá, and Matamoros).

Chondrohierax uncinatus subsp. Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser, xxii, 1942, 525 (Michoacán; Apatzingán; spec.).

Regerhinus megarhynchus Gurney, Ibis, 1880, 318, 319, 321, in text, part (Santa Efigenia, Oaxaca).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 102, part (Uvera and Casamaloapam, Veracruz; Chihuitan, Santa Efigenia, and Cacoprieto, Oaxaca, and Tonalá, Chiapas).

CHONDROHIERAX UNCINATUS MIRUS Friedmann

Grenada Hook-billed Kite

Adult male.—Similar to the cinnamon-barred variety of the gray phase of *C. u. uncinatus* but smaller; nuchal collar well developed, cinnamon-buff to ochraceous-buff, and the barring on the underparts ochraceous-tawny to tawny, with little or no grayish edgings to the bars. Iris pale green; bill and feet (in dried skins) like those of *C. u. uncinatus*.

Adult female.—Similar to the brown phase of *C. u. uncinatus* but smaller and differing in the following respects: Top of head deep fuscous, with little or no indication of gray; nuchal collar, extending to the ear coverts and cheeks, ochraceous-buff to ochraceous-tawny; upperparts fairly widely edged with tawny or cinnamon-rufous; barring on underparts more ochraceous-tawny to tawny, and with little or no indication of brown edgings.

Immature and juvenal and natal down.—Not known.

Adult male.—Wing 250–265 (257); tail 165–182 (172.7); culmen from base of cere, 28–32 (30); tarsus 30–38 (34.5); middle toe, without claw, 25 mm. (3 specimens, including the type).

Adult female.—Wing 269–270; tail 180–183; culmen 30.0; tarsus 41; middle toe, without claw, 31 mm. (2 specimens).

Range.—The island of Grenada, where resident.

Type locality.—Morne Rouge, Grenada.

Regerhinus uncinatus Cory, List Birds West Indies, 1885, 23; rev. ed., 1886, 23 (Grenada); Auk, iv, 1887, 48 (Grenada); Birds West Indies, 1889, 206 (Grenada); Cat. West Indian Birds, 1892, 98 (Grenada).—Wells, List Birds Grenada, 1886, 6 (Grenada); Proc. U. S. Nat. Mus., ix, 1887, 622 (Grenada).—Maynard, Cat. Birds West Indies, 1898, 8 (Grenada and Antilles).—Clark, Proc. Boston Soc. Nat. Hist. xxxii, 1905, 243 (Grenada, res.).

Chondrohierax uncinatus Peters, Check-list Birds of World, i, 1931, 200, part (Grenada).

Chondrohierax uncinatus mirus Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 313 (orig. descr.; range; Grenada, West Indies).—Bond, Birds West Indies, 1936, 69, 70, text (West Indies; Grenada; descr.), 413; Check List Birds West Indies, 1940, 20 (Grenada; rare; possibly in Trinidad?); Check List Birds West Indies, ed. 2, 1945, 21 (rare).

CHONDROHIERAX WILSONII (Cassin)

Wilson's Kite

Adult male.[67]—Above dark plumbeous, slightly paler on the head, all the feathers with concealed white bars toward their bases, those of the upper tail coverts tipped with paler plumbeous; sides of face uniform deep plumbeous; chin and throat white, faintly barred with plumbeous; remainder of underparts white barred with dark plumbeous, tinged with ferruginous, the bars becoming narrower and more widely spaced posteriorly; primaries and secondaries fuscous, with white on the basal halves of their inner webs, distantly barred with fuscous-black, bordered with cinnamon-rufous on the inner webs of the inner feathers; tail plumbeous-black, white at base, tipped with mouse gray, and crossed by three light bars, which are mouse gray distally and which become narrower and more white basally, particularly on their inner webs, which are usually pure white; bill (dried skin) pale greenish yellow to yellowish white, inclining to bluish horn color at base; iris yellowish glaucous; feet lemon yellow.

Adult female.—Above fuscous, narrowly edged with tawny, and with concealed white bars to the bases of the feathers; entire underparts, as well as a broad muchal collar, white or pale buff, barred with russet or chestnut, the barring on the chin, sides of face, and upper throat being the narrowest; primaries and secondaries deep fuscous shading through cinnamon-rufous, to white toward the bases of the inner webs, distantly barred with fuscous-black; tail fuscous-black, basally white, tipped with hair brown or drab, and crossed by four light bars, which are hair brown, shading through cinnamon-rufous

[67] In the original description the gray bird is described as the female and the brown bird as the male, but in two more recent specimens (Museum of Comparative Zoology), a gray bird is sexed male and a brown bird female. Since there is now no question that in *C. uncinatus uncinatus* gray birds are male it is probable that in this species also the gray birds are male and the brown birds female.

to white basally, where they are narrower; iris yellowish glaucous; feet lemon-yellow.

Immature male.—Like the adult female, but slightly paler above, less heavily barred below, the bars being more hair brown than russet, and with about five light bars in the tail.

Immature female.—None seen.

Juvenal.—Said to be brownish gray above, the feathers bordered terminally with pale rusty; remiges indistinctly banded with darker; tail ash gray, becoming gradually white at the extreme base, narrowly tipped with the same, and crossed by six narrow bands of dull fuscous-black; head plain pale ashy, becoming gradually white on the throat; beneath white, distinctly and narrowly barred with brownish.

Natal down.—Not known.

Adult male (two specimens).—Wing 240–244; tail 177–178; culmen from cere, 35.5–37.5; tarsus, 29–30; middle toe without claw, 26–27 mm.

Adult female (two specimens including type).—Wing 251–262; tail, 181–188; culmen, from cere, 35–38.5; trasus, 28–30; middle toe, without claw, 28–29 mm.

Range.—Cuba; confined to the eastern part of the island where the arboreal snail on which it feeds, *Polymita picta*, is found; said to be very local.

Type locality.—Near Gibara, Cuba.

Cymindis wilsonii Cassin, Proc. Acad. Nat. Sci. Philadelphia, iii, 1847, 199, 200 (Gibara, Cuba; coll. Acad. Nat. Sci. Philadelphia).—Sclater, Proc. Zool. Soc. London, 1857, 3, in text (crit.).

Cymindis wilsoni Cassin, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, i, pt. 1, 1847, 21, pl. 7 (reprint of orig. descr.).—Bonaparte, Consp. Gen. Av., i, 1850, 21.—Strickland, Orn. Syn., i, 1855, 129.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 257 (crit.).—Gray, Hand-list, i, 1869, 28, No. 255.—Pelzeln, Orn. Bras., Abth. 4, 1870, 398.—Sclater and Salvin, Nom. Av. Neotr., 1873, 122.

Pernis (*Regerhinus*) *wilsoni* Kaup, Archiv für Naturg., 1850, i, 40.

Regerhinus wilsoni Bonaparte, Rev. Mag. Zool., vi, 1854, 534.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 159 (monogr.).—Gurney, Ibis, 1880, 321, in text (color of bill, etc.); List Diurn. Birds Prey, 1884, 88; Cat. Birds Prey, 1894, 27, 32.—Cory, Cat. West Indian Birds, 1892, 139 (crit.).—Gundlach, Orn. Cubana, 1895, 13.—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1899, 31 (type spec.; crit.).

Regerhinus wilsonii Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306.—Gundlach, Journ. für Orn., 1861, 322; Rep. Fisico Nat. Cuba, i, 1865–66, 222; Journ. für Orn., 1871, 360 (habits; crit.); Contr. Orn. Cubana, "1876" = (1873), 35; Cat. Aves Cubana, Anales Soc. Esp. Hist. Nat., ii, 1873, 98.—Cory, List Birds West Indies, rev. ed., 1886, 23; Auk, iv, 1887, 47; Birds West Indies, 1889, 205.

Leptodon wilsoni Sharpe, Cat. Birds Brit. Mus., i, 1874, 333; Hand-list, i, 1899, 269.

Regerhinus uncinatus wilsoni Swann, Synopt. List Accip., pt. 3, 1920, 100.

Chondrohierax wilsoni Swann, Synop. Accip., pt. 3, 1922, 158; Bull. Brit. Orn. Club, xliii, 1923, 148 (crit.).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 47 (e. Cuba).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517 (e. Cuba; rare).—Bond, Birds West Indies, 1936, 70, 413 (e. Cuba; descr.; crit.; local names).—Stresemann, Arch. für Naturg., n. f., ix, 1940, 144, in text (feeds on snails).—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 36 (Cuba).

Chondrohierax wilsonii Peters, Check-list Birds of World, i, 1931, 200 (distr.).—Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 317 (key characters).—Bond, Check List Birds West Indies, 1940, 21 (e. Cuba); Proc. Acad. Nat. Sci. Philadelphia, xciv, 1942, 90 (formerly known as far west as Santa Clara, Trinidad); Check List Birds West Indies, ed. 2, 1945, 21 (very rare).

Cymindis magnirostris Cassin, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, i, pt. 1, 1847, 22 (new name for *C. wilsonii* Cassin).

Cymindis uncinatus (not *Falco uncinatus* Temminck) Lembeye, "Aves Cuba, Suppl. (1850)."—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 305 (Cuba).

Regerhinus uncinatus Cabanis, Journ. für Orn., 1854, p. lxxx (Cuba).—Gundlach, Journ. für Orn., 1861, 402 (crit.),

Asturina Cinerea Lembeye, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cienfuegos).

(?) *Cymindis cayennensis* Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

Subfamily Milvinae: True Kites

= Milvinae Wetmore and Miller, Auk, xliii, 1926, 342.—American Ornithologists' Union, Check-list, ed. 4 1931, 63.—Peters, Check-list Birds of World, i, 1931, 200.—Wetmore, Smiths. Misc. Coll., lxxxix, No. 13, 1934, 34.

< Ictininae Shufeldt, Ibis, 1891, 232 (for *Ictinia* only).

< Ictiniae Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 54.

> Aquilinae Sharpe, Hand-list, i, 1899, 260 (includes Falconidae, Circaetinae, Circinae, Elaninae, Perninae, and part of Buteoninae).

> Milvinae Gurney, List Diurn. Birds Prey, 1884, 79 (includes Elaninae, Perninae, and *Gampsonyx*).

> Milvidae Shufeldt, Ibis, 1891, 232 (includes Elaninae).

< Rostrhaminae Shufeldt, Ibis, 1891, 232 (*Rostrhamus* only).

Coracoids not overlapping at sternum; nasal septum incompletely ossified; upper portion of anterior face of tarsometatarsus with no bony ring, the posterior face with two processes, not fused into a ring; outer (fourth) toe not reversible; the short basal joint of the second toe permanently ankylosed with the joint next beyond it (peculiar to Milvinae with the exception of *Haliaetus* in the Buteoninae); superciliary process of lachrymal well developed; anterior ridge of palate little, if at all, developed; palate desmognathous; the basipterygoid processes poorly developed; claws graduated in size and flattened or grooved beneath; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; caeca minute; sides of head densely feathered except around the eyes, which are overhung by a bare superciliary shield and have a bare space beneath the lower lid,

the lores sparsely feathered; tarsus short, not or slightly longer than the middle toe; tarsus scutellate; plumage soft.

The Milvinae is the least well marked of all the subfamilies of Accipitridae, but it forms a natural group in itself and, by its segregation, permits a clearer definition of the groups most closely allied to it, the Perninae and the Accipitrinae. Besides the three genera found in North and Middle America it contains one other genus in South America and four more in the Old World.

Genus HARPAGUS Vigors

Harpagus Vigors, Zool. Journ., i, No. 3, Oct. 1824, 327, 338. (Type, by original designation, *Falco diodon* Temminck.)

Bidens Spix, Avium Species Novae (Av. Bras.), i, "1824" [1825–1826?], 14. (Type by subsequent designation (Stephens, *in* Shaw's Genl. Zool., xiv, pt. 1, 1826, 346) *Falco bidentatus* Latham.)

Diodon (not of Linnaeus, 1758) Lesson, Traité d'Orn., ii, 1830, 95. (Type, by original designation, *D. brasiliensis* Lesson=*Falco bidentatus* Latham.)

Diplodon Nitzsch, Pterylographia, 1840, 93. (Type, by original description, *Falco bidentatus* Latham.)

Rather small Accipitridae (wing about 203–232 mm.) with maxillary tomium doubly toothed, mandibular tomium truncate at tip and notched subterminally; longest primary exceeding distal secondary by less than length of tail, the latter two-thirds or more as long as wing, its tip more or less rounded; tarsus one-fifth or more as long as wing, the planta tarsi without transverse scutella, and with plumage soft and blended.

Bill relatively short but very stout, its depth at frontal antiae decidedly less than chord of culmen and decidedly more than its width at same point; culmen about as long as first two phalanges of middle toe, distinctly (though sometimes rather broadly) ridged, strongly and regularly curved from base, the tip of maxilla forming a moderately long and rather thick unguis; gonys half as long as culmen or slightly more, strongly convex, ascending terminally, sometimes rather prominent basally, where projecting into median portion of interramal area;[68] maxillary tomium much produced, its margin divided by two distinct notches, separating two distinct toothlike projections, the posterior portion concavely incised; tip of mandible obliquely truncate, preceded by a deep concave notch separating two prominent angular tomial projections; cere relatively narrow, its lateral anterior outline slightly convex above, receding and slightly concave below; nostril small, longitudinally elliptical or subcrescentic, situated about midway between commissure and top of cere, and near anterior edge of cere. Wing moderately long, rather rounded, the longest primary exceeding distal secondary by about one-third the length of tail, or

[68] A unique character, at least among American Accipitridae.

slightly more; third or third and fourth primaries longest, the first about equal to eighth;[69] three to four outer primaries with inner webs obliquely sinuated. Tail slightly more than two-thirds as long as wing, slightly to decidedly rounded. Tarsus equal to or slightly more than one-fifth as long as wing, much less than one-third as long as tail, the acrotarsium feathered above for more than one-third its length, the nude portion with a single series of large, broad, transverse scutella, the planta tarsi with several series of longitudinally hexagonal scales.

Plumage and coloration.—Plumage soft and full, the feathers of of dorsal region and underparts rather distinctly outlined, the feathers rather broad, with rounded tips; primaries and rectrices rather soft, the former with rounded, the latter with obliquely subtruncate tips; loral and orbital regions nearly nude, the former with sparse, rather small, bristles. Adults plain gray or slaty above, darker on primaries (and, sometimes, on pileum), the tail banded with blackish (the paler bands sometimes white or partly so); under tail coverts white, thighs (sometimes axillars and under wing coverts also) cinnamon-rufous, the remaining underparts mostly plain cinnamon-rufous or bluish gray, or barred with cinnamon-rufous, gray, and white. Young dusky brown above, the feathers usually margined terminally with dusky or tawny, the underparts whitish, usually more or less spotted or streaked with dusky brown.

Range.—Tropical continental America, from Guatemala to southern Brazil. (Three species.)

KEY TO THE SPECIES AND SUBSPECIES OF HARPAGUS

a. Axillars rufous----------**H. diodon** adults (extralimital) [70]

aa. Axillars white or cream color.

b. Breast and upper abdomen fairly uniform rufous brown, lower abdomen barred with grayish white.

H. bidentatus bidentatus adult (extralimital) [71]

bb. Breast and upper abdomen not uniform rufous-brown.

c. Breast and upper abdomen barred rufous-brown and whitish (southern Mexico to Panama)----------**H. bidentatus fasciatus** adult (p. 116)

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[69] Pterylographical characters, as given by Nitzsch (Pterylographia) are as follows: "Remiges, 23. Pterylosis exactly as in *Baza* [an Old World Pernine genus allied to *Odontriorchis*], but the outer branch of the inferior tract still further united to the stem. Dorsal portion of spinal tract remaining far from the scapular part, and without rows of feathers beside it, Powder-down tracts extended farther forward, in the shape of narrow bands, to the shoulders."

[70] **Harpagus diodon** (Temminck).—*Falco diodon* Temminck; Pl. Col. livr., 34, 1822, pl. 198 (Brazil=Rio Peruhype, near Villa Viçosa, southern Bahia).

[71] **Harpagus bidentatus bidentatus** (Latham).—*Falco bidentatus* Latham Index Orn., i, 1790, 38 (Cayenne).

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cc. Breast and abdomen white, streaked with fuscous-brown or fuscous-black.
d. Thighs rufescent.....H. diodon young (extralimital)
dd. Thighs whitish.
e. Streaks narrow and confined to breast and upper abdomen; upperparts blackish...H. bidentatus bidentatus young (extralimital)
ee. Streaks broad and extending over whole underparts down to flanks; upperparts brownish (southern Mexico to Panama).
H. bidentatus fasciatus young (p. 116)

HARPAGUS BIDENTATUS FASCIATUS Lawrence

BANDED DOUBLE-TOOTHED HAWK

Adult male.—Top and sides of head blackish plumbeous; back, scapulars, interscapulars, and lesser and median upper wing coverts, rump, and upper tail coverts blackish plumbeous to blackish slate becoming washed with olive brown on the lower back and rump and

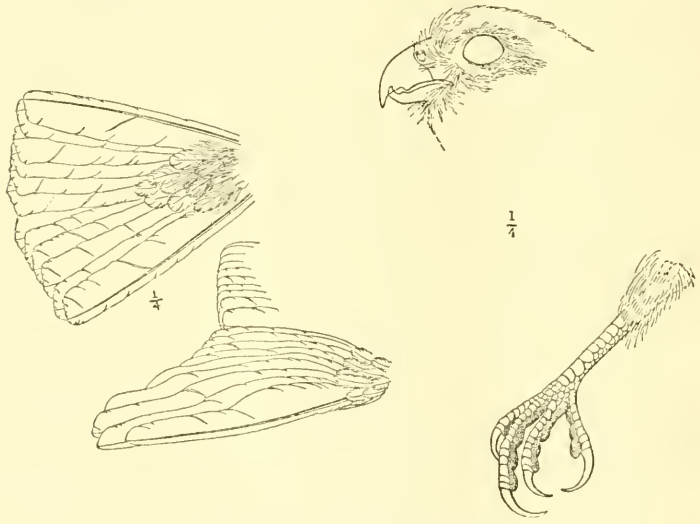

FIGURE 10.—*Harpagus bidentatus.*

with fuscous on the outer greater upper wing coverts; the remiges obscurely banded (above) fuscous-black and clove brown, fuscous-black and white (on under surface); rectrices fuscous-black tipped with grayish white, often with a hair brown wash on the terminal band, and crossed by three narrow bars of the same color, the bars equally spaced, dividing the rectrices into approximately equal fourths; on the underside the rectrices are broadly barred fuscous-black and whitish, the light bars about the same width as the dark ones; chin and middle of throat creamy white with a blackish plumbeous line down the midline of the throat; sides of throat blackish plumbeous; middle of breast, all of abdomen, sides, flanks, and thighs uniformly barred deep mouse gray and whitish, the bars all of about the

same width (3–4 mm. wide), the sides of the breast, and to a lesser extent the dark bars on the breast and sides, sometimes even on the abdomen and flanks, washed with bright russet, the sides of the breast practically solid russet; under wing coverts and bend of wing whitish to ivory yellow; under tail coverts whitish to cartridge buff; iris dull orange-red; cere and edge of gape light olive-green; maxilla dull black, bluish at extreme base below cere; mandible greenish horn, tip dusky; tarsi and feet orange-yellow; claws black.

Adult female.—Similar to male but with very much more russet on the underparts, the pectoral, abdominal, and crural bars being often dark chestnut with almost no trace of deep mouse gray.

Young (sexes alike).—Entire upperparts sepia, mottled with white on the occiput and nape, darkest on the forehead and crown; the scapulars each with a subterminal large white patch, which sometimes shows through the overlying feathers giving a mottled appearance; the upper wing coverts and remiges narrowly tipped with whitish; retrices as in adult, but slightly paler and with the whitish bars more hair brown medially as though composed of two whitish lateral areas connected by a grayish hair brown median area; sides of crown, superorbital and auricular area sepia faintly and narrowly streaked with pale cinnamon; cheeks sepia vary faintly streaked with avellaneous; chin, throat, breast, abdomen, sides, flanks, and thighs whitish to cartridge buff heavily streaked with dull fuscous, the throat with only a single median streak; the streaks becoming shorter and more like apical spots on the abdomen; and widening to form bars on the lower sides and flanks; under tail coverts whitish, unstreaked; under wing coverts ivory white to pale buff at the axillars.

Natal down.—Not known.

Adult male.—Wing 202–203 (202.5); tail 140.5–146 (143.2); culmen from cere 15.5–16.5 (16); tarsus 41.5–42 (41.7); middle toe without claw 26–27.5 (26.7 mm.) (2 specimens).

Adult female.—Wing 222–226 (224); tail 153–158 (155.5); culmen from cere 16.5–17.5 (17); tarsus 44–45; middle toe without claw 28–28.5 (28.2 mm.) (2 specimens).

Range.—Tropical zone from southern Mexico (Valley of Mexico; Cacoprieto, Santa Efigenia, Oaxaca; Potrero, Córdoba, Veracruz) south through Guatemala (Vera Paz), Nicaragua (San Juan del Sur; Sucuyá; La Libertad; Chontales); El Salvador (Volcán de Conchagua); Costa Rica (Escazú; Guácimo, Río Banana; Cuabre de Talamanca); to the Chiriqui district of Panama (David, Bogaba) and to Colombia (west of eastern Andes and western Ecuador).

Type locality.—Guatemala.

Harpagus bidentatus (not *Falco bidentatus* Latham, 1790) Sclater and Salvin, Ibis, 1859, 219 (Guatemala); Proc. Zool. Soc. London, 1864 (Panama).—

Sclater and Salvin, Proc. Zool. Soc. London, 1864, 369 (Panama Railroad).—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574.—Hartert, Nov. Zool., v, 1898, 502.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 317 (Panama).—Reichenow, Die Vögel, i, 1913, 414.—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 250 (Colombia; distr.; lv, 1936, 238, part (w. Ecuador).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Canal Zone, Gatun, Panama; spec.; colors).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 145 (Santa Marta area, Colombia).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (Ecuador).—Schüz, Journ. für Orn., lxxv, 1927, 101, in text, part (powder downs).—Miller, Condor, xxxix, 1937, 220, in text (Panama; skeleton; crit.).

Harpagus bidentatus bidentatus Huber, Proc. Acad. Nat. Sci. Philadelpha, lxxxiv, 1932, 213 (ne. Nicaragua; spec.; colors of soft parts; meas.).

Falco bidentatus Schüz, Journ. für Orn., lxxv, 1927, 101, in text, part (powder downs).

Harpagus fasciatus Lawrence, Proc. Acad. Nat. Sci. Philadelphia, 1868, 429 (Guatemala; coll. G. N. Lawrence).—Salvin, Ibis, 1870, 115 (crit.).—Sclater and Salvin, Nom. Av. Neotr., 1873, 122.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 363 (Guatemala to Panama); Hand-list, i, 1899, 272.—Gurney, Ibis, 1881, 123, in text (crit.); List Diurn. Birds Prey, 1884, 91; Cat. Birds Prey, 1894, 27.—Sumichrast, La Naturaleza, v, 1881, 237 (Veracruz and Oaxaca).—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 377 (San Juan del Sur, Nicaragua), 389 (Sucuyá, Nicaragua).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7, 8, 1894, 223 (Veracruz and Tehuantepec, Mexico).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 106 (Valley of Mexico; Cacoprieto and Santa Efigenia, Oaxaca; Potrero, Córdoba, Veracruz; Vera Paz, Guatemala; La Libertad, Chontales, San Juan del Sur, and Sucuyá, Nicaragua; Miravalles, Costa Rica; David, Chiriquí, Panama).—Bangs, Proc. New England Zool. Club, iii, 1902, 21 (Bogaba, Chiriquí, Panama).—Carriker, Ann. Carnegie Mus., vi, 1910, 469 (Escazú, Guácimo, Río Banana, and Cuábre de Talamanca, Costa Rica; habits).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 163 (dist.; Guatemala).—Dickey and van Rossem Publ. Field Mus. Nat. Hist., zool. ser., xxiii, 1938, 106 (El Salvador; Volcán de Conchagua).

Harpagus bidentatus fasciatus Swann, Synopt. List Accip., pt. 3, 1920, 106; Synopsis Accip., pt. 3, 1922, 166 (s. Mexico to Panama).—Peters, Check-list Birds of World, i, 1931, 200 (distr.); Bull. Mus. Comp. Zool., lxxi, 1931, 309 (Almirante and Changuinola, Panama).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Permé, Obaldia, Panama); lxxviii, 1935, 298 (Panama, rare and local).—Miller, Condor, xxxix, 1937, 219, in text (Panama; spec.).

Genus ICTINIA Vieillot

Ictinia Vieillot, Analyse, 1816, 24. (Type, by monotypy, "Milan-Cresserell Vieillot"=*Milvus cenchris* Vieillot=*Falco plumbeus* Gmelin.)

Nertus Boie, Isis, 1828, 314. (Type, as designated by Ridgway, 1874, *Falco plumbeus* Latham.)

Poecilopteryx Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258. (Type, by monotypy, *Falco plumbeus* Gmelin.)

Paecilopteryx (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 22.

Ictinea (emendation) Swainson, Classif. Birds, i, 1836, 302, in text.

Small, short-legged, long-winged somewhat falconlike hawks (wing about 267–312 mm.), with maxillary tomium conspicuously toothed or angularly lobed, third primary longest and exceeding distal secondary by more than length of tail, the latter less than two-thirds as long as wing, its tip truncate or emarginate, and tarsus less than one-seventh as long as wing.

Bill relatively short and thick, its depth at base nearly equal to chord of culmen and decidedly greater than its width at same point; culmen (chord) about as long as distance from anterior margin of cere to anterior angle of eye, equal to or slightly greater than length (chord) of claw of hallux, strongly and regularly decurved from base, the tip of maxilla forming a moderately elongated unguis; gonys about four-sevenths as long as culmen, rather strongly convex, ascending terminally and rather prominent basally; maxillary tomium with a prominent "tooth" or lobe a little posterior to base of unguis, then (basally) more or less concave, then faintly to rather strongly convex; rictus on vertical line with about middle of loral region; anterior outline of cere extending straight across base of culmen, then forming a straight or faintly convex line obliquely downward and backward to posterior portion of tomium; nostril relatively very small, nearly circular to longitudinally oval or elliptical. Wing long and pointed, the longest primary exceeding distal secondary by more than half the length of wing and more than length of tail; third primary longest, the first shorter than sixth; inner web of two outer primaries emarginated, the third more or less sinuated. Tail more than two-fifths to more than half as long as wing, its tip truncate to distinctly emarginate. Tarsus less than one-seventh as long as wing, less than one-third as long as tail, the upper portion feathered in front for two-fifths to nearly half its length, the acrotarsium with broad transverse scutella, those on lower portion more irregular in form and arrangement, the planta tarsi with rather small, sometimes longitudinal, hexagonal scales, the sides of tarsus with similar but larger scales; middle toe a little more than three-fifths to two-thirds as long as tarsus; inner toe extending to distal end of second phalanx of middle toe, the outer toe much longer, reaching to about middle of third phalanx of middle toe; hallux about as long as inner toe, extremely broad, through unusual lateral development of the pads (tylari); claws moderate in size and curvature, acute, grooved beneath, distinctly graduated in size, that of the hallux about one-third longer than that of inner toe.

Plumage and coloration.—Plumage compact, that of head and neck blended, elsewhere with feathers rather distinctly outlined; primaries and rectrices firm and moderately rigid; lores densely feathered, the feathers with rather short bristlelike tips; orbits feathered. Adults

plain gray, darker on back, wings, etc., the primaries (sometimes entire wing) and tail black; primaries sometimes with greater part of inner webs chestnut, and rectrices sometimes with inner webs crossed by two or three bands of white.

Range.—Warmer parts of continental America, from Lower Austral Zone of Eastern United States to Paraguay. (Two species.)

KEY TO THE SPECIES OF ICTINIA

a. Underparts uniform gray.....Adults
b. Wings with inner webs of remiges with indistinct spots of rufous and outer webs with very indistinct stripe of the same; tail without white markings, more than half as long as wing, its tip distinctly emarginate (southeastern and east-central United States).....I. misisippiensis (p. 120)
bb. Wings with inner webs of primaries almost wholly rufous, the outer webs with only a trace of this color; tail with about three narrow bands of white across inner webs, less than half as long as wing, its tip truncate (Mexico to Argentina).....I. plumbea (p. 125)
aa. Underparts whitish, heavily streaked.....Young
b. Underparts streaked with fuscous blackish; little white on superciliaries. I. plumbea (p. 125)
bb. Underparts streaked with rufescent brownish; much white on superciliaries. I. misisippiensis (p. 120)

ICTINIA MISISIPPIENSIS (Wilson)

Mississippi Kite

Adult male.—Forehead, crown, occiput, cheeks, auriculars, secondaries, and entire lower parts varying from pallid neutral gray to pale neutral gray, lightest on the head and secondaries, where it is less ashy; a frontal area on the forehead, the chin, and the tips of the secondaries hoary whitish; darkest on sides, lower abdomen, thighs, and under tail coverts, where it sometimes approaches neutral gray; lores and circumocular region black; scapulars, interscapulars, back, and rump deep neutral gray to slate color, darkening on upper tail coverts to blackish slate and black with a dull blackish slate wash; the scapulars with concealed white spots; tail uniformly blackish with a blackish slate wash; lesser upper wing coverts slate color to blackish slate, rest of upper wing coverts deep neutral gray to slate color; primaries blackish, all but the outermost two with an indistinct, semiconcealed, narrow longitudinal stripe of rufescent chestnut brown on the outer web and a series of large spots of this color on the inner web; feathers of underparts white basally, the white sometimes showing through where feathers have been lost or ruffled; shafts of primaries and rectrices black both above and below (usually); the outermost (first) primary sharply, the next concavely, emarginated on the inner web; tail slightly emarginated, lateral (longest) rectrices exceeding middle (shortest) ones by about 12 mm.; bill, cere, eyelids, and interior of mouth, deep black; iris deep burnt carmine or lake

red; rictus orange-red; tarsus and toes salmon-orange red; lower part of tarsus and large scutellae of toes dusky.

Adult female.—Similar to adult male but head and secondaries darker, pale neutral gray to neutral gray, the secondaries often narrowly tipped with whitish; the primaries averaging slightly less of the chestnut-brown color; the shafts of the rectrices black on upper side only, light beneath (color in dried skin light buff).

Immature (sexes alike).—Similar to adult female, sometimes even darker (scapulars, interscapulars, all upper wing coverts, back, rump, and upper tail coverts dusky neutral gray to blackish slate); secondaries not lighter than primaries; rectrices with angular whitish spots on the inner webs, producing, on under surface, the effect of three

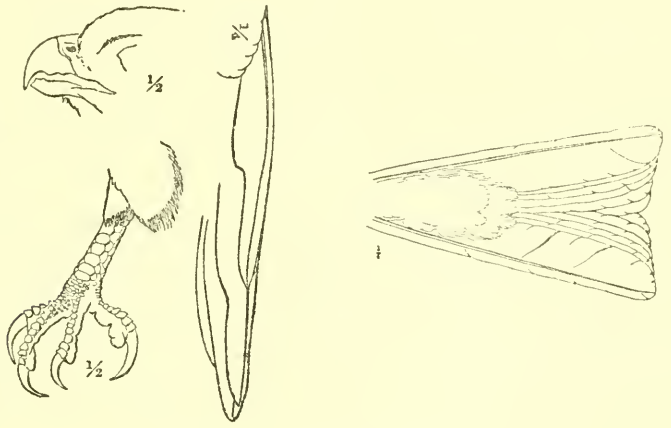

FIGURE 11.—*Ictinia mississippiensis.*

transverse whitish bands; inner web of outermost primary with a large white area proximal to the emargination; interior of mouth whitish; iris less reddish that in adult.

Juvenal (sexes alike).—Top and sides of head ivory white, each feather with a dusky neutral gray center, the dark centers broad on the crown and occiput, narrower on the cheeks and auriculars; lores and supraorbital area black, a pale buffy whitish superciliary band; the nape, scapulars, interscapulars, back, rump, upper tail coverts, and upper wing coverts blackish slate to black, the feathers narrowly tipped with cinnamon-brown, often paling to buff or even whitish at extreme distal edge; especially on greater upper wing coverts; scapulars with a concealed white patch which sometimes shows through; remiges dusky neutral gray to black, tipped with white; rectrices dusky neutral gray obscurely banded with black (above) and tipped with white; under surface of rectrices paler, deep neutral gray obscurely banded with dark neutral gray, with white patches on the

inner web; entire underparts whitish, much tinged with buff and pale tawny on the breast, abdomen, sides, flanks, thighs, and under tail coverts; each feather with a conspicuous central patch of brown (varying from russet margined with black to mummy brown), the feathers of the chin and throat with only narrow fuscous-black shaft streaks; the dark median spots largest on the breast and abdomen, smaller and less conspicuous on the under tail coverts; under wing coverts light pinkish cinnamon to cinnamon-buff, each feather broadly barred with russet-brown to mummy brown, the bars not quite reaching the edge of the feathers, being really large, rounded median blotches.

Natal down.—Snow white, the hindneck, back, and upper surface of the wings tinged with brownish; a facial "mask" dull grayish.

Adult male.—Wing 286–305 (295); tail 149–166 (157.1); culmen from cere 14.5–15.5 (15.1); tarsus 35–37 (35.9); middle toe without claw 26.5–27 (26.9 mm.) (6 specimens).

Adult female.—Wing 300–315 (309.5); tail 154–172 (163); culmen from base 15–17 (16); tarsus 36.5–40.5 (38.3); middle toe without claw 28–29 (28.4 mm.).[72]

Range.—Breeds from northeastern Kansas, Missouri, and Iowa (formerly southern Illinois and southern Indiana), and South Carolina south to Oklahoma, Texas, Arkansas, Louisiana, Alabama, and Florida; winters in Florida and southern Texas, south to Guatemala (one record, near Coban); casual or accidental in Colorado, Nebraska, Wisconsin, Kentucky, New Jersey, Pennsylvania, and North Carolina (Cherokee County); formerly in Ohio (bones found); doubtfully recorded from Jamaica.

Type locality.—Below Natchez, Miss.

Falco misisippiensis Wilson, Amer. Orn., iii, 1811, 80, pl. 25, fig. 1 (below Natchez, Miss.; type now in coll. Acad. Nat. Sci. Philadelphia; see Stone, Proc. Acad. Nat. Sci. Philadelphia, 1899, 11; Auk, xvi, 1899, 169; Faxon, Bull. Mus. Comp. Zool., lix, 1915, 127).

Falco mississippiensis Wilson, Amer. Orn., iii, "1811" (Ord reprint, 1824), 80 pl. 25, fig. 1 (a few miles below Natchez, Miss.).—Latham, Gen. Hist. Birds, i, 1821, 275.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 349; iv, pt. 2, 1825, 270 (crit.); Obs. Wilson's Amer. Orn., 1826, [9, 129].—Jameson, ed. Wilson's Amer. Orn., i, 1831, 72.

Nertus mississippiensis Boie, Isis, 1828, 314.

Milvus mississippiensis Cuvier, Règne Anim., ed. 2, 1829, 335.

Ictinia mississippiensis Gray, Gen. Birds, i, 1845, 36; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 48; Hand-list, i, 1869, 28, No. 266.—Kaup, Isis, 1847, 84 bis (monogr.), 365, 377; *in* Jardine's Contr. Orn., 1850, 57.—Bonaparte, Consp. Gen. Av., i, 1850, 22; Rev. Mag. Zool., vi, 1854, 535.—Brewer, ed. Wilson's Amer. Orn., 1852, 685; North Amer. Ool., i, 1857, 41.—Hoy, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 304 (Wisconsin).—Pratten, Trans.

[72] Five specimens, except for culmen length, where four specimens.

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Ictinia (*Ictinia*) *mississippiensis* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258.

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223, in text (Mexico; Tamazunchale, San Luis Potosí; 2 records).—Pearson, Brimley, and Brimley, Birds North Carolina, 1942, 90 (North Carolina).—Stevenson, Condor, xliv, 1942, 109 (central panhandle of Texas).—Allan and Sime, Condor, xlv, 1943, 110, in text (Texas Panhandle); Wils. Bull., lv, 1943, 32 (Texas Panhandle; common).—McIlhenny, Auk, lx, 1943, 543 (s. Louisiana).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No 20, 1944, 357 (Gulf Coast of Mississippi; common fall transient).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 97 (California; vagrant, one record).—Goodrich, Rept. Kansas State Board Agr., lxiv, No. 267, 1945, 172 (Kansas; common summer resident in south-central part).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds of Georgia, 1945, 34 (Georgia; formerly common summer resident; now rare).—Haecker, Moser, and Swenk, Nebraska Bird Review, xiii, 1945, 8 (Nebraska; casual).—Allan, Condor, xlix, 1947, 88 (Texas; population and prey).

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Ictinia mississippinensis Wheeler, Birds Arkansas, 1925, 47, xx (Arkansas; habits).

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Ictinia ophiophaga Vieillot, Gal. Ois., 1825, 44, pl. 17.—Lesson, Traité d'Orn., 1831, 74.

Ictinia plumbea Vieillot, Nouv. Dict. Hist. Nat., xvi, 1817, 76, part (cites Ois. Amér. Sept., pl. 10 bis=*I. mississippiensis*).—Bonaparte, Isis, 1832, 1137; Geogr. and Comp. List, 1838, 4.—Jardine, ed. Wilson's Amer. Orn., i, 1832, 368, pl. 25, fig. 1.—Audubon, Synopsis, 1839, 14; Birds Amer., 8vo ed., i, 1840, 73, pl. 17.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed., 2, 1840, 93.—Cahoon, Orn. and Oöl., xv, 1890, 35.

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Ictinia subcoerulea Coues, Proc. Acad. Nat. Sci. Philadelphia, 1875, 345 (ex *Falco subceruleus*, the sharp-winged hawk of a dark or dusky blue color, Bartram, Travels in Florida, etc., 1791, 290); Check List North Amer. Birds, ed. 2, 1882, No. 491; Key North Amer. Birds, ed. 2, 1884, 524.—Sennett, U. S. Geol. and Geogr. Surv. Terr., Bull. 4, No. 1, 1878, 42 (lower Rio Grande, Tex., migrating northward May 7).—Gibbs, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, 1879, 490 (Michigan; spec. from Cass County).

Ictinia subcaerulea Nehrling, Bull. Nuttall Orn. Club, vi, 1882, 173 (Houston, etc., Texas; habits).—Goss, Aux, iii, 1885, 19 (Neosho Falls, Kans.; breeding habits; descr. nest and eggs).

ICTINIA PLUMBEA (Gmelin)

Plumbeous Kite

Adults (sexes alike).—Entire head, chin, throat, nape, and entire underparts varying from gull gray to dark gull gray, darkening to slate gray on the under tail coverts; lores and circumocular region black; scapulars, interscapulars, back, and rump slate to blackish slate, the interscapulars sometimes with a dark plumbeous wash; up-

per wing coverts and upper tail coverts plumbeous-black with a slight gloss; outermost primary plumbeous-black, the next six primaries (2–7, inclusive) plumbeous-black externally but with all but the apical part of the inner web dark chestnut, the apical part plumbeous-black, in the inner primaries, the chestnut often extending in a thin longitudinal area next to the shaft on the outer web; innermost primaries and the secondaries blackish slate; under wing coverts slate; rectrices plumbeous-black with three white bars on the inner web of all but the median pair, which is uniform plumbeous-black; bill black, cere bluish black; iris very bright carmine; tarsus and toes deep reddish orange or reddish yellow, claws black.

Young (sexes alike).—Top and sides of head streaked black and whitish, each feather black centrally and completely margined with white; rest of upperparts, wings, and tail plumbeous-black to black, each feather narrowly tipped with white, the white tips sometimes washed with pale tawny, especially on the upper wing coverts; tail as in adults; primaries tipped with white, lacking all rufous; on inner webs whitish where adults are rufescent except that in the young the outermost primary is also internally white; the whitish patch much mottled with fuscous; the black apical portion of the feathers much longer than in adults; entire underparts white or whitish, cartridge buff to ivory white, heavily streaked with fuscous, the streaks narrow on the chin and throat, very broad on the breast and middle of abdomen, becoming bars on the flanks, thighs, and under tail coverts; under wing coverts whitish broadly barred with fuscous.

Natal down.—Said to be white.

Adult male.—Wing 270–313 (298.2); tail 123–167 (148.5); culmen from cere 15.5–18 (16.6); tarsus 37–42.4 (38.5); middle toe without claw 26–27.5 (26.8 mm.) (13 specimens).

Adult female.—Wing 274–320.5 (301.6); tail 139–161 (145.3); culmen from cere 16–19.5 (17.1); tarsus 34–42 (37.7); middle toe without claw 24–29 (26.3 mm.) (11 specimens).

Range.—Tropical zone from eastern and southern Mexico (Tamaulipas; San Luis Potosí; Veracruz; Oaxaca, and Yucatán) south through British Honduras, Guatemala, Honduras, Nicaragua, El Salvador, Costa Rica and Panama to all of South America (including Trinidad) south as far as Peru (Amable María; Chyavetas, Chamicuros, and Yurimaguas, eastern Peru); Bolivia (Lower Río Beni; Mapiri; Chiquitos and Moxos Provinces); Paraguay (Upper Paraná; Sapucay); and Argentina (Mocoví and Ocampo, Chaco). In Central America, north to the pine districts of central Guatemala, and the mangroves of coastal El Salvador breeds and migrates south; apparently absent in winter.

Type locality.—Cayenne.

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Ictinia plumbea Vieillot, Nouv. Diect. Hist. Nat., xvi, 1817, 76, part (cites Ois. Amér. Sept., 1807, pl. 10 bis=*I. mississippiensis*).—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 41 (Cayenne).—Lesson, Man. d'Orn., i, 1828, 100; Traité d'Orn., 1831, 74.—d'Orbigny and Lafresnaye, Synop. Avium, 1837, 6 (Provinces of Moxos and Chiquitos, Bolivia).—d'Orbigny, Voy. Amér. Merid., iv, pt. 3, 1839, 101 (Provinces of Chiquitos and Moxos, Bolivia; habits).—Gray, Gen. Birds, fol. ed., 1844, pl. 9, fig. 1; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 49 (South America).—Tschudi, *in* Wiegmann's Archiv. für Naturg., x, pt. 1, 1844, 265 (Peru); Fauna Peruana, Aves, 1845–46, 19, 112.—Hartlaub, Index Azara's Apunt., 1847, 3.—Kaup, Isis, 1847, 86 (monogr.), 365, 372, 377; *in* Jardine's Contr. Orn., 1850, 57.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 735; Journ. für Orn., 1874, 229 (Brazil).—Bonaparte, Rev. Mag. Zool., vi, 1854, 535.—Barry, Proc. Boston Soc. Nat. Hist., v, 1854, 2 (Wisconsin; seen near Racine).—Strickland, Orn. Syn., i, 1855, 140.—Burmeister, Syst. Übers. Th. Bras., ii, 1856, 104.—Sclater, Proc. Zool. Soc. London, 1856, 285 (Córdoba, Veracruz); 1859, 390 (Playa Vicente, Veracruz); Ibis, 1860, 104 (spec. in coll. Brit. Mus. said to be from North America).—Sclater and Salvin, Ibis, 1859, 220 (Honduras); Proc. Zool. Soc. London, 1867, 590 (Pará, Brazil); 1868, 169 (Venezuela); 1873, 303 (Chyavetas, Chamicuros, and Yurimaguas, e. Peru); 1879, 541 (Concordia and Remédios, Antioquia, Colombia), 638 (Tilotilo, Yungas, and Provinces Moxos and Chiquitos, Bolivia); Nom. Av. Neotr., 1873, 122.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 289 (Panama); U. S. Nat. Mus. Bull. 4, 1876, 43 (Chimalapa and San Andrés Tuxtla, Oaxaca).—Schlegel, Mus. Pays-Bas, ii, No. 7, livr. 2, 1863, 10 (monogr.); No. 36, livr. 10, 1873, 131.—Léotaud, Ois. Trinidad, 1866, 142.—Salvin, Proc. Zool. Soc. London, 1867, 158 (Santa Fé de Veraguas, Panama); 1870, 216 (Calovébora and Calobre, Panama); Ibis, 1886, 77 (Bartica Grove, Brit. Guiana); 1890, 84 (Ruatan Island, Honduras).—Pelzeln, Orn. Bras., Abth. 1, 1868, 6; Abth. 4, 1870, 398.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144; Proc. Boston Soc. Nat. Hist., xvi, 1873, 54 (Brazil); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 203; Man. North Amer. Birds, 1887, 225.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 364 (Pará, Brazil; Concordia; Colombia; Guatemala); Hand-list, i, 1899, 272.—Taczanowski, Proc. Zool. Soc. London, 1874, 552 (Amable Maria, Peru); Orn. Pérou, i, 1884, 138.—Salvin and Godman, Ibis, 1879, 206 (Manuare, Santa Marta, Colombia); Biol. Centr.-Amer., Aves, iii, 1901, 103 (El Salto, San Luis Potosí; Tampico, Tamaulipas; Paso de Milpa and Playa Vicente, Veracruz; Chuialapa, Oaxaca; Tizimia, Yucatán; Cayo, Brit. Honduras; Petén, Lanquin, Cajabou, Sierra de las Minas, and Paraiso, Guatemala; Ruatan Island, Honduras; San Rafale del Norte, and Matagalpa, Nicaragua; Cordillera de Tole, Calovébora, Calobre, and line of railway, Panama; Colombia to Guiana, Brazil, and Bolivia).—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, Ecuador; food).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Gurney,

List Diurn. Birds Prey, 1884, 85; Cat. Birds Prey, 1894, 26.—Berlepsch and Ihering, Zeitschr. Orn., 1885, 172 (Taquara, etc., Rio Grande do Sul, s. Brazil).—Ferrari-Pérez, Proc. U. S. Nat. Mus., ix, 1886, 168 (Paso de la Milpa, Vera Cruz).—Berlepsch, Journ. für Orn., 1887, 123 (Paraguay); Nov. Zool., xv, 1908, 293 (Cayenne).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 105 (lower Río Beni and Mapiri, Bolivia; habits); v, 1893, 148 (Chapada, Matto Grosso, Brazil), 157 (descr. nest and eggs).—Beristain and Laurencio, Mem. y Revista de la Soc. Cient. "Antonio Alzate," vii, No. 7–8, 1894, 223 (Mexico; Veracruz and Tehuantepec).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 69 (Trinidad; habits; descr. nest); xxxvi, 1917, 250 (Cali and Villavicencio, Colombia); lv, 1926, 239 (distr., Ecuador).—Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil).—Hartert, Nov. Zool., v, 1898, 501 (Paramba, 3,500 ft., nw. Ecuador).—Holmberg, Segundo Censo Argentina, i, Aves, 1898, 508.—Loat, Ibis, 1898, 563 (Brit. Guiana).—Ihering, Rev. Mus. Paulista, iii, 1899, 364 (São Paulo); iv, 1900, 163 (Cantogallo and Novo Fribourgo, São Paulo), 272 (descr. eggs); vi, 1904, 339 (Paraguay).—Salvadori and Festa, Boll. Soc. Zool. Torino, xv, 1900, 31 (Valle del Zamora, e. Ecuador).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 43 (La Merced, centr. Peru).—Oates, Cat. Birds' Eggs Brit. Mus., ii, 1902, 294 (eggs; plate xiv, fig. 3).—Hellmayr, Abh. Akad. Wiss., Kl. 2, xxii, No. 3, 1905, 571 (crit.); Nov. Zool., xiii, 1906, 46 (Chaguanas and Seelet, Trinidad); xiv, 1907, 406 (Humaytha, Rio Madeira, Brazil); xvii, 1910, 413 (Calama, Brazil; color of unfeathered parts); Nov. Zool., xxviii, 1921, 185 (crit.); Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 457 (Maranhão, Brazil).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 83 (Los Amates, Guatemala).—Ihering and Ihering, Av. Brazil, 1907, 98 (Rio Grande do Sul, São Paulo, Mattogrosso, Pará, Piauhy, Goyaz, Minas Geraes, and Bahia).—Snethlage, Journ. für Orn., 1908, 22 (Rio Purús, w. Brazil); Bol. Mus. Goeldi, v, 1908, 67 (Rio Purús); lxxvi, 1928, 554, 572, 677 (breeding habits; South America; ne. Brazil).—Hartert and Venturi, Nov. Zool., xvi, 1909, 240 (Mocovi and Ocampo, Argentina; descr. nest and eggs).—Dabbene, Orn. Argent., 1910, 249 (Mocoví, Chaco); Bol. Soc. Physis Buenos Aires, i, 1913, 304 (Mocoví and Campo, S. Chaco, Argentina).—Chubb, Ibis, 1910, 74 (Sapucay, Paraguay; fresh colors of unfeathered parts); Birds Brit. Guiana, i, 1916, 274 (habits); Ibis, 1919, 289 (Bellavista, Bolivia, 1,400 m.; crit.).—Brabourne and Chubb, Birds South America, i, 1912, 72 (e. to Paraguay and s. Brazil).—Bertoni, Fauna Paraguaya, 1913, 43 (upper Río Paraná).—Peters, Auk, xxx, 1913, 371 (Camp Mengel, Quintana Roo); Check-list Birds of World, i, 1931, 201 (distr.).—Reichenow, Die Vögel, i, 1913, 413.—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 39 (Paramaribo, Wanageg, and Overtoon, Surinam).—Menegaux, Rev. Franc. Orn., 1918, 290 (Teju-Cuaré, Missiones, Argentina).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Canal Zone, Panama).—Swann, Synopt. List Accip., pt. 3, 1920, 105; Auk. xxxviii, 1921, 363 (Nevados, 3,000 feet, Venezuela); Synop. Accip., pt. 3, 1922, 165 (Mexico to Bolivia, Brazil, and Paraguay).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (near Mindo, Ecuador, 5,000 ft.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 146 (Bonda and Cincinnati, Santa Marta, Colombia; crit.).—Mazza, Deautier, and Steullet, Soc. Arg. Pat. Reg. Norte 3rd Reunion, 1927, 257 (blood parasites).—Schüz, Journ. für Orn., lxxv, 1927, 143, 144, in text (powder downs).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 140 (descr.; habits; Panama).—Griscom, Bull. Mus.

Comp. Zool., lxix, 1929, 158 (Cana, Darien, Panama); Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 163 (distr.; Guatemala); Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Permé, Obaldia, Panama); Auk, l, 1933, 298 (Suretka Farm, Talamanca, Costa Rica; spec.); Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (Panama; common; partly migratory); Ibis, 1935, 810, in text (Guatemala; Sierra de las Minas).—Young, Ibis, 1929, 13 (coast, Brit. Guiana; food).—Gliesch, Egatea, xv, 1930, 283 (Rio Grande do Sul, Brazil).—Laubmann, Wiss. Ergebn. Deutsch. Gran Chaco Exped., Vög., 1930, 98 (San José, Formosa, Argentina).—Naumburg, Bull. Amer. Mus. Nat. Hist., ix, 1930, 113 (crit.; distr.; Matto Grosso, Brazil).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 365 (Río Frio, Santa Marta; Magdalena, Colombia).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras, Ruatan Island).—Belcher and Smooker, Ibis, 1934, 589, in text (Trinidad; hist.; eggs).—Roberts, Tropical Agr., xi, No. 4, 1934, 5 (Trinidad).—Anonymous, El Hornero, vi, 1935, 184 (distr.).—Carriker and de Schauensee, Proc. Acad. Nat. Sci. Philadelphia, lxxxvii, 1935, 416 (Guatemala; Quirigua, spec.).—van Tyne, Univ. Michigan Mus. Zool. Misc. Publ. 27, 1935, 18 (Pacomon, Flores, and Ixtinta Peten, Guatemala; spec.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 400 (syn.; distr.; Argentine records).—Pinto, Rev. Mus. Paulista, xxii, 1938, 64 (distr.), xxv, 1941, 12 (Matto Grosso; Chapada; spec.).—Holmberg, El Hornero, vii, 1939, 159 (Paraguay and Corrientes, Argentina).—Dugand, Rev. Acad. Colomb., iii, 1940, 218 (not uncommon in Magdalena–Caribbean area, Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 111 (Lower Amazonia; Pará, San Antonio do Prata, Peixe-Boi, Rio Tocantine, Arumatheua).—Sutton and Pettingill, Auk, lix, 1942, 8 (Gómez Farías region, sw. Tamaulipas; spec.).—Brodkorb, Misc. Publ. Univ. Michigan Mus. Zool., No. 56, 1943, 27 (Mexico; Tabasco; La Palma and Tenosique; spec.; meas.).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxiii, No. 1, 1945, 49 (n. Bolivia; spec.).—Dugand and Borrero, Caldasia, iv, 1946, 139 (Colombia; Leticia; spec.).—Street, Auk, lxiii, 1946, 371 (Trinidad).—Wetmore, Smiths. Misc. Coll., cvi, No. 1, 1946, 25 (San José Island, Pearl Islands, Panama).—Skutch, Condor, xlix, 1947, 25 (nesting habits Ecuador).

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Buteo plumbeus Cuvier, Règne Anim., ed. 2, i, 1829, 339.

Ictinia (Poecilopteryx) plumbea Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258 (South America).

Ictinia plumbeus Bonaparte, Consp. Gen. Av., i, 1850, 22.—Gray, Hand-list, i, 1869, 29, no. 267.

Ictinea plumbea Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 145 (San Miguel Island, Bay of Panama).—Austin, Bull. Mus. Comp. Zool., lxix, 1929, 373 (Mountain Cow; Augustine, Brit. Honduras).

Ictinia plumbea plumbea Miller and Griscom, Amer. Mus. Nov., No. 25, Dec. 7, 1921, 5, 6 (Colombia to Ecuador, Venezuela, Trinidad, and Brazil).—Huber, Proc. Acad. Nat. Sci., Philadelphia, lxxxiv, 1932, 213 (ne. Nicaragua; spec.; colors of soft parts; habits).—Sutton, Wils. Bull., lvi, 1944, 7 (crit.).

Milvus cenchris Vieillot, Ois. Amér. Sept., i, 1807, 38, pl. 10 *bis*.

Buteo cenchris Cuvier, Règne Anim., ed. 2, i, 1829, 337.

Ictinia plumbea vagans Miller and Griscom, Amer. Mus. Novit., No. 25, 1921, 5, 6 (Peña Blanca, Nicaragua; coll. Amer. Mus. Nat. Hist.; range, Mexico to Peru and Matto Grosso, Brazil).—Swann, Synop. Accip., pt. 4, 1922, Errata et Add. (crit.; considered not valid).

Genus ROSTRHAMUS Lesson

Cymindes (not *Cymindis* Cuvier, 1817) Spix, Av. Bras., i, 1824, [=1825–1826?], 7. (Type, by monotypy, *C. leucopygus* Spix=*Herpetotheres sociabilis* Vieillot.) (See Oberholser (Proc. Biol. Soc. Washington, xxxv, 1912, 79), who considers *Cymindes* Spix available as the proper name for this genus. It is clearly a misprint or "emendation" of *Cymindis* and therefore should not be taken up; spelled *Cymindis* by Spix on pl. 2 and in index.)

Rostrhamus Lesson, Traité d'Orn., 1830, 55. (Type, by monotypy, *R. niger* Lesson=*Herpetotheres sociabilis* Vieillot.)

Rostramus (emendation) Lesson, Traité d'Orn., 1831, 658.—Burmeister, Reise durch La Plata-Staaten, ii, 1861, 435.

Rosthramus (emendation) d'Orbigny and Lafresnaye, Synop. Av., 1837, 3.—Lesson, Rev. Zool., ii, 1839, 133.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 327.

Rostrhamas (emendation) Kaup, *in* Jardine's Contr. Orn., 1849, 112.

Rostrohamus (emendation) Le Moine, Orn. Canada, pt. 1, 1860, 87.

Rostrihamus (emendation) Bertoni, Aves Nuevas Paraguay, 1901, 171.—Berg, Com. Mus. Nac. Buenos Aires, i, 1901, 287.

Hamirostrum (emendation) Sundevall, Tentamen, 1873, 109; Öfv. Svensk, Vet.=Akad. Förh. (Disp. Accip. Hemeroharp.), 1874, 36.

Hemirostrum (emendation) Giebel, Thes. Orn., iii, 1877, 810.

Rostrhamphus (lapsus?) Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 249.

Medium-sized Accipitridae (wing about 325–370 mm.) with the maxilla very narrow and sickle-shaped, culmen two-fifths to nearly three-fifths as long as tarsus, the latter only about one-seventh as long as wing and less than one-third as long as tail, the tail nearly half as long as wing, its tip emarginate, the upper tail coverts and base and tip of tail white.

Maxilla very slender (its greatest depth at base equal to less than one-fourth the length of culmen, and slightly less than its width at same point), sickle-shaped, the tomia regularly concave throughout; mandibular tomium strongly convex throughout, the gonys straight or even faintly concave, descending, rather than ascending, terminally; cere very broad on top, its anterior outline straight across base of culmen thence forming a nearly straight line obliquely downward and backward; nostril narrowly elliptical or fusiform, obliquely horizontal; rictus on line (vertically) with anterior angle of eye. Wing long and broad, the longest primary exceeding distal secondary by about two-fifths the length of wing; fourth or fourth and fifth primaries longest, the first (outermost) shorter than seventh; four outer primaries with inner webs sinuated. Tail a little less than half as long as wing, its tip slightly emarginate. Tarsus about one-seventh as long as wing, between one-fourth and one-third as long as tail, the upper portion feathered in front and one side for about two-fifths its length, the nude portion of the acrotarsium with a continuous series of broad transverse scutella, the tarsus covered elsewhere with small hexagonal scutella, those of the planta tarsi larger and more quadrate, arranged

in two or more longitudinal series; middle toe about three-fourths as long as tarsus; outer toe decidedly longer than inner toe, the latter reaching beyond distal end of second phalanx of middle toe; hallux about as long as inner toe, its claw longer than the digit; all the claws long, slender, slightly curved, and acute, the middle one with inner edge produced, except for terminal third, and broken by a few transverse fissures; web between basal phalanges of outer and middle toe barely obvious.

Plumage and coloration.—Plumage full and, for the greater part, blended, the feathers of the mantle, however, rather distinctly outlined; loreal and rictal regions and mandibular rami nude, with a few small bristles; chin with semiantrorse feathers with long slender bristle-like tips. Adults plain slate color or brownish slate, becoming nearly black on head, remiges, and tail, the last white at base and broadly tipped with pale gray or grayish white; tail coverts white. Young buffy (more or less deep) below, spotted and striped with dusky, dusky above, the feathers margined and otherwise variegated with buffy, the tail as in adults.

Range.—Tropical and subtropical America, from Florida and Cuba to Argentina and Peru. (Monotypic.)

KEY TO THE SUBSPECIES OF ROSTRHAMUS SOCIABILIS

a. Culmen from cere (chord) under 30 mm.
b. Wing relatively short, usually under 340 mm. (Nicaragua to Argentina). **R. s. sociabilis** (p. 131)
bb. Wing relatively longer, over 340 mm.
c. Culmen from cere (chord) 25 mm. or less in length (average 23.3 mm.) (Florida)—**R. s. plumbeus** (p. 136)
cc. Culmen from cere (chord) 25 mm. or more in length (average 25.2 mm.) (Cuba and Isle of Pines)—**R. s. levis** (p. 139)
aa. Culmen from cere (chord) 30 mm. or longer (e. Mexico)—**R. s. major** (p. 138)

ROSTRHAMUS SOCIABILIS SOCIABILIS (Vieillot)

SOUTH AMERICAN SNAIL KITE

Adult male.—Entire head, back, wings, breast, abdomen, sides, flanks, and thighs uniform slate or blackish slate color, becoming nearly black on the remiges and rectrices (which latter are light tipped as indicated below), and with a faint brownish mouse gray tone on the upper wing coverts; upper and under tail coverts and base of tail whitish; tips of rectrices whitish with a broad subterminal band of mouse grayish drab; the lores and external rim on the eyelids entirely nude and flame scarlet in color; bill mainly black; cere, gape, and mandibular rami flame scarlet; iris carmine; tarsus and toes apricot orange; claws black.

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Adult female.—Entire head, back, throat, breast, abdomen, sides, wings, and tail (but not upper and under tail coverts) fuscous, becoming fuscous-black and black on the nape and top and sides of head and sides of neck; streaked with light buff on the throat and breast; the feathers of the middle abdomen and the upper wing coverts tipped with dull russet, the scapulars, and secondaries narrowly tipped with cinnamon buff and mikado brown to avellaneous; upper and under tail coverts, primaries, and rectrices as in male; thighs bright russet barred with fuscous black; soft parts apparently as in male.

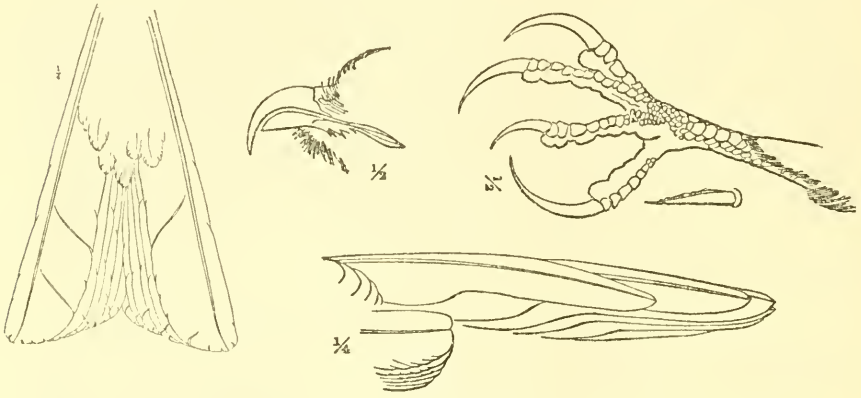

FIGURE 12.—*Rostrhamus sociabilis.*

Subadult male.—Similar to adult male but with the upperparts tinged with fuscous and the chin, throat, breast, and middle of the abdomen, broadly streaked with cinnamon-buff, the streaks becoming darker and more rufous, almost to deep chestnut on the breast.

Subadult female.—Similar to adult female above except that the entire top of the head and the nape are streaked white and black, the individual feathers being white basally and black terminally;[73] entire underparts whitish to pinkish buff heavily streaked with fuscous-black; the thighs cinnamon-buff; under wing coverts cinnamon-buff streaked with fuscous-black.

Juvenal (sexes alike).—Similar to subadult female but the underparts more ochraceous-tawny; the under tail coverts washed with buff; above fuscous-black or black; the forehead and anterior part of the crown ochraceous-tawny streaked with black (the tawny becoming more rufescent on the crown); cheeks and auriculars pale ochraceous-tawny with a broad fuscous band running from the poste-

[73] This is also true of the adult, but there the black areas are larger and hide the white.

rior margin of the eye to the side of the throat; the upper wing coverts scapulars, back, and wing feathers with broader terminal bands of cinnamon-buff, and, on the upper wing coverts, russet; the tips fading to white externally; upper tail coverts white; tail as in subadult or adult; bill anterior to cere black; base of bill including the mandibular rami, the lores and rim of the eyelids zinc orange; iris liver brown; tarsus and toes dull yellow ocher; claws black.

Natal down.—Avellaneous washed with mouse gray, banded with deep mouse gray (the only specimen seen was partly in juvenal plumage and showed the natal down only on the lower breast abdomen and thighs) the upperparts said to be more ochraceous; iris brown.

Adult male.—Wing 325–341 (332.5); tail 164–182 (172.1); culmen from the cere 24.5–26.5 (25.2); culmen including the cere 31–33 (32.1); tarsus 49–54 (51.5 mm.) (6 specimens).

Adult female.—Wing 338–350 (342); tail 167.5–188 (175); culmen from cere 24–25 (24.6); culmen including cere 31–33 (31.6); tarsus 47–51 (49 mm.) (3 specimens).

Range.—Nicaragua (Los Sábalos, Ometipi), Honduras, Costa Rica, and eastern Panama south through South America to Uruguay and central Argentina, Paraguay, Bolivia, but in the west not recorded south of Ecuador (Yaguachi Marshes).

Type locality.—Corrientes and Río de la Plata.

Herpetotheres sociabilis Vieillot, Nouv. Dict. Hist. Nat., xviii, 1817, 318 (district of Corrientes and Río de La Plata, Argentina, between lat. 29° and 30° S.).

Rosthramus sociabilis d'Orbigny, Voy. Amér. Mérid., iv, 1837, 73 (Corrientes to Paraguay and to Buenos Aires).—d'Orbigny and LaFresnaye, Synop. Avium, 1837, 3 (Corrientes).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 134 (Gulf of Nicoya, Costa Rica).—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 395 (Ometepe, Nicaragua).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Koenigswald, Journ. für Orn., 1896, 386 (Brazil; São Paulo).—Bruch, Rev. Mus. La Plata, xi, 1904, 251 (Santa Catalina, Prov. Jujuy, Argentina).—Ihering, Rev. Mus. Paulista, vi, 1904, 338 (Paraguay).—Ihering and Ihering, Aves Brazil, 1907, 96 part, 410 (crit.).—Bertoni, Anal. Soc. Cient. Argentina, lxxv, 1913, 80 (Missiones, Argentina).—Delacour, Ibis, 1923, 145 (near San Fernando de Apure, Venezuela; habits).

Rostrhamus sociabilis Kaup, Isis, 1847, 352 (monogr.), 370, 375, 381; *in* Jardine's Contr. Orn., 1850, 78.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2 1848, 47 (South America); Hand-list, i, 1869, 27, No. 251, part (includes *Helicolestes hamatus!*).—Sclater, Proc. Zool. Soc. London, 1858, 60 (e. Ecuador); 1860, 289 (Bobahoyo, Ecuador).—Berlepsch, Journ. für Orn., 1873, 283 (Santa Catarina, s. Brazil; crit.; geogr. range; synonymy); Proc. Zool. Soc. London, 1885, 119 (Babahoyo, Ecuador); Journ. für Orn., 1887, 133.—Sclater and Salvin, Nom. Av. Neotr., 1873, 121, part (South America; Central America); Proc. Zool. Soc. London, 1879, 541 (Remedios, Colombia).—Durnford, Ibis, 1877, 188 (Prov. Buenos Ayres, Argentina; habits).—Gibson, Ibis, 1879, 413 (Cape San Antonio, Buenos Aires; habits; eggs).—Gurney, Ibis, 1879, 337 (crit. as to specific names), 341 (synonymy);

List Diurn. Birds Prey, 1884, 85, part; Cat. Birds Prey, 1894, 26, part.—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 409 (Los Sábalos, Nicaragua).—Salvin, Ibis, 1886, 77 (Brit. Guiana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Withington, Ibis, 1888, 470 (Lomas de Zamora, Argentina).—Sclater and Hudson, Argent. Orn., ii, 1889, 72 (Argentina; descr; habits).—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Holland, Ibis, 1892, 204 (Estancia Espartilla, Argentina).—Hudson, Nat. La Plata, 1892, 95 (life hist.; Argentina).—Kerr, Ibis, 1892, 142 (Rio Pilcomayo, Argentina; food).—Alpin, Ibis, 1894, 195 (Uruguay).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 70 (Trinidad).—Robinson, Flying Trip to Tropics, 1895, 154 (Baranquilla, Colombia).—Salvadori, Boll. Mus. Zool. Torino, x, 1896, 20 (Colonia Risso, Paraguay).—Holmberg, Segundo Censo Argent., i, Aves, 1898, 507.—Ihering, Ann. Est. Rio Grande do Sul, xvi, 1899, 141 (Pedras Brancas and Barra do Rio Camaguam, Brazil); Rev. Mus. Paulista, iii, 1899, 361 (Iguape, São Paulo, Brazil); Cat. Fauna Brazil, i, 1907, 410 (Brazil; distr.).—Sharpe, Hand-list, i, 1899, 269, part.—Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 131 (Bonda, Colombia).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1901, 99, part (Colombia to Guianas and Paraguay; Nicaragua; Costa Rica).—Bruch, Rev. Mus. La Plata, xi, 1904, 251 (Jujuy).—Hellmayr, Abh. math.-phys. Kl. Bayr. Akad. Wiss., xxii, No. 3, 1906, 569 (Corrientes, Argentina); Nov. Zool., xiv, 1907, 89 (Teffé, Brazil; crit.); xxviii, 1921, 176 (crit., on d'Orbigny specimen, etc.).—Bangs, Proc. Biol. Soc. Washington, xxii, 1909, 29 (Bolsón, Costa Rica).—Hartert and Venturi, Nov. Zool., xvi, 1909, 240 (Barracas al Sud, Argentina; habits).—Carriker, Ann. Carnegie Mus., vi, 1910, 467 (Bolsón, Costa Rica; crit.).—Grant, Ibis, 1911, 333 (Ajó, s. Argentina).—Brabourne and Chubb, Birds South Amer., i, 1912, 71 (Guiana; Venezuela; Colombia; Peru; Brazil; Argentina).—Bertoni, Fauna Paraguaya, 1913, 43 (Puerto Bertoni; Iguasú).—Reichenow, Die Vögel, i, 1913, 401, part.—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1913, 195.—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 346 (Orinoco Valley from delta to Ciudad Bolívar).—Chubb, Birds Brit. Guiana, i, 1916, 265 (Brit. Guiana; descr. imm. female; habits).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 38 (near Paramaribo, Surinam; crit.).—Dabbene, El Hornero, i, 1918, 96 (Martín García; Argentina).—Swann, Synopt. List Accip., pt. 3, 1920, 99 (S. Amer., Cent. Amer.).—Tremoleras, El Hornero, ii, 1920, 17 (Uruguay).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 147 (Bonda, Santa Marta, Colombia).—Delacour, Ibis, 1923, 145 (San Fernando, Venezuela).—Arribalzaga, El Hornero, iii, 1924, 273 (common names, Argentina).—Lang, Nautilus, xxxvii, 1924, 1, pl. 4 (Georgetown, Brit. Guiana; manner of feeding on *Ampullaria*).—Naumburg, Auk, xliii, 1926, 491, part (range).—Devincenzi, Anal. del Museo Hist. Nat. Montevideo, ser. 2, iii, 1929, 29 (S. America).—Young, Ibis, 1929, 11 (coast, Brit. Guiana; habits; food).—Daguerre, Auk, liv, 1937, 219, in text (Argentina; nesting habits).—Dugand, Rev. Acad. Colomb., Cienc., iv, 1941, 395, pls. 1, 3.

Rostramus sociabilis Lee, Ibis, 1873, 135 (Province of Entre Rios, Argentina).

Rostrihamus sociabilis Lillo, Anal. Mus. Nac. Buenos Aires, viii, 1902, 205 (margins of Río Sali, Tucumán); Rev. Letras y Cienc. Soc., iii, 1905, 62 (Río Sali, Tucumán).—Dabbene, Orn. Argent., 1910, 247 (Santa Catalina; Jujuy; Tucumán; Ocampo; Chaco, Barracas al Sur, Buenos Aires).—Serié, El Hornero, i, 1918, 71 (common names, Argentina).—Daguerre, El Hornero, ii, 1922, 266 (Rosas, Argentina).—Pereyra, El Hornero, iii, 1923, 165 (Buenos Aires, Argentina).—Serié and Smyth, El Hornero, iii, 1923, 44 (Santa

Elena, Argentina).—Martelli, Mem. Mim. Obras Pub. Corresp., 1924, 631 (Buenos Aires).—Smyth, El Hornero, iv, 1927, 15 (eggs; Argentina).—Anonymous, El Hornero, v, 1933, 244, in text (Chascomus, Argentina; Las Flores).

Rostrhamphus sociabilis Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 249 (Barranquilla, Colombia).

Rostrohamus sociabilis Hudson, Birds La Plata, ii, 1920, 59 (habits).

Rostrhamus sociabilis sociabilis Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 208.—Swann, Synop. Accip., pt. 3, 1922, 156 (Colombia to Peru and Argentina); Monogr. Birds Prey, ii, 1934, 247.—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 237 (Yaguachi Marshes, Ecuador).—Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 106 (w. of Puerto Pinasco, Paraguay; near San Vicente, Laguna Castillos, Lascano, and Río Nepo, Uruguay; near 25 de Mayo, Buenos Aires; habits; fresh colors soft parts; crit. gen. name).—Friedmann, Bull. Mus. Comp. Zool., lxviii, No. 4, 1927, 158 (Argentina; habits).—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 455 (Maranhão, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, iii (Matto Grosso, Brazil).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 365 (Río Frío, near Santa Marta; Magdalena, Colombia; habits).—Peters, Check-list Birds of World, i, 1931, 202.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Permé, Panama); lxxviii, 1935, 298 (Obaldia, eastern Darien).—Belcher and Smooker, Ibis, 1934, 589 (Trinidad; hist.; rare).—Laubmann, Verh. Orn. Ges. Bay., xx, 1934, 290.—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, lxxxvi, 1934, 371 (Matto Grosso, Brazil; spec.).—Zotta, El Hornero, v, 1934, 382 (food habits; Argentina).—[Anonymous], El Hornero, vi, 1935, 184 (Panama and South America).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 401 (Argentine records; syn.; distr.).—Pereyra, Mem. Jardin Zool. La Plata, ix, pt. 2, 1938, 51 (ne. Buenos Aires Province; common; distr.; eggs).—Pinto, Rev. Mus. Paulista, xxii, 1938, 65 (distr.); xxv, 1941, 12 (Matto Grosso, Cuiabá; spec.; very common).—Dugand, Rev. Acad. Colomb., iii, 1940, 218 (Barranquilla, Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 111 (Lower Amazonia; Rio Tapajoz, Pinhy; spec.).—Gyldenstolpe, Kungl. Svenska Vet. Akad. Handl., xxiii, No. 1, 1945, 49 (n. Bolivia; spec., meas.).—Borrero, Caldasia, iv, 1946, 170 (Colombia, Sabana de Bogota).

Rosthramus sociabilis sociabilis Snethlage, Journ. für Orn., lxxvi, 1928, 677 (breeding habits, etc.; ne. Brazil).

Ibicter sociabilis Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 7 (Surinam, Brazil); ii, No. 36, livr. 10, 1873, 138.

Hamirostrum sociabile Heine and Reichenow, Nom. Mus. Hein., Orn., 1890, 264 (Brazil).

Cymindes sociabilis Oberholser, Auk, xl, 1923, 679, part.

Rostrhamus socialis socialis Nelson and Goldman, Proc. Biol. Soc. Washington, xlvi, 1933, 193.

Cymindes leucopygus Spix, Av. Bras., i, 1824, 7, pl. 2 (Amazon River, Brazil).

Ibicter leucopygus Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 8 (Brazil); No. 36, livr. 10, 1873, 138.

Rostrhamus leucopygus Sclater and Salvin, Nom. Av. Neotr., 1873, 121 (Brazil).—Barrows, Auk, i, 1884, 111 (Lower Uruguay).—Holmberg, Segundo Censo Argent., i, Aves, 1898, 508.—Sharpe, Hand-list, i, 1899, 269 (Brazil; Guianas; Colombia).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 31 (Vinces, w. Ecuador).—Reiser, Denkw. Mat.-Nat. Akad. Wiss

Wien, 1910, 90 (Joazeiro, Paranaguá, etc., ne. Brazil).—Snethlage, Journ. für Orn., 1928, 572 (eggs; size of clutch).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928, 154 (Pará, Brazil).

Rosthramus leucopygus Sharpe, Cat. Birds Brit. Mus., i, 1874, 328, part (Demarara, Brit. Guiana; Bogotá, Colombia; Pebas, e. Peru; Venezuela), 459.—Hellmayr, Abh. B. Akad. Wiss., Kl. II, xxii, No. 3, 1905, 568 (crit. as to Spix's type).—Snethlage, Journ. für Orn., 1908, 538 (Arumathena, Tocantins, Brazil).

Falco hamatus Temminck Planches Col., i, 1823, text to pl. 61 (not pl. 61 or pl. 231 which are *Helicolestes hamatus*).—Maximilian, Beitr. Naturg. Bras., iii, 1830, 182.

Rostrhamus hamatus Hartlaub, Index Azara's Apunt., 1847, 2.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848 (1849), 736 (Brit. Guiana).—Bonaparte, Consp. Gen. Av., i, 1850, 20, part.—Burmeister, Syst. Übers. Th. Bras., iii, 1856, 46; Journ. für Orn., 1860, 242 (near Paraná, Entre Rios, Argentina).—Leótaud, Ois. Trinidad, 1866, 31 (Trinidad).—Pelzeln, Orn. Bras., i, 1868, 6 (São Paulo, Goyáz, Matto Grosso).—Reinhardt, Vidensk. Medd. Naturhist. Foren., 1870, 66 (São Paulo).—Doering, Period. Zool. Arg., i, 1874, 247.

Rostramus hamatus Doëring, Periodico Zool., i, 1874, 247 (Río Guayquiraró, near the Paraná, Corrientes, Argentina).—Burmeister, Reise durch La Plata-Staaten, ii, 1861, 435 (Río Paraná).

Rosthramus hamatus Fontana, Gran Chaco, 1881, 192 (on the banks of the rivers of the Chaco).

Falco rostrhamus Maximilian, Beitr. Naturg. Bras., iii, 1830, 182.

Rostrhamus niger Lesson, Traité d'Orn., 1831, 56 (Brazil; coll. Paris Mus.).

Rostrihamus tenuirostris Bertoni, Aves Nuevas de Paraguay, 1901, 171 (Alta Paraná; orig. descr.; see Arribalzaga, Apunt. Crit. Av. Parag. Bertoni, 1902, 378).

Rostrhamus toeniurus Sclater and Salvin, Nom. Av. Neotr., 1873, 121.

Rostrhamus taeniurus Gurney, Ibis, 1879, 340 (synonymy); List Diurn. Birds Prey, 1884, 85.—Sharpe, Handlist, i, 1899, 269 (Amazonia; may refer to *Helicolestes hamatus* or to the present bird).—De Haan, Ardea, ix, 1920, 11 (Surinam; crit.).

Rostrhamus sociabilis taeniurus Ihering and Ihering, Aves Brazil, 1907, 96 (Pará, Brazil).

Rostrhamus hamatus taeniurus Ihering and Ihering, Aves Brazil, 1907, 410 (Amazonia, Brazil; crit.).

Hamirostrum taeniurum Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 264 (Brazil).

Rostrhamus sociabilis plumbeus Swann, Synop. Accip., pt. 3, 1922, 156, part (Central America).—Peters, Bull. Mus. Comp. Zool., lxix, No. 12, 1929, 418 (Toloa Lagoon, Honduras); Check-list Birds of the World, i, 1931, 201, part (distr., Central America).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1932, 299 (Honduras).—Griscom, Auk, l, 1933, 298 (Bebedero, Costa Rica).

ROSTRHAMUS SOCIABILIS PLUMBEUS Ridgway

Everglade Snail Kite

All plumages similar to corresponding plumages of typical *sociabilis*, but with longer wings.

Adult male.—Wing 340–368 (356.7); tail 170–191 (182.5); culmen

from the cere 22–25 (23.3); culmen including the cere 29–32.5 (30.4); tarsus 50.5–55 (53.7 mm.)[74]

Adult female.—Wing 345–373 (361.5); tail 172–193 (184); culmen from cere 22–24 (22.9); culmen including cere 30.5–31 (30.9); tarsus 54–57 (55.5 mm.) (4 specimens).

Range.—Florida; breeds locally in southern and central Florida north (formerly to Wakulla County) to Panasoffkee Lake, Sumter County, and Crescent Lake, Putnam County; has occurred north to Waukeenah and the Tallahassee region.

Type locality.—Everglades of Florida.

Cymindis hamatus (not *Falco hamatus* Temminck, 1823) Harris, Proc. Acad. Nat. Sci. Philadelphia, ii, 1844, 65 (Miami River, Fla.).

Rosthramus sociabilis Baird, Rep. Stansbury's Expl. Great Salt Lake, 1852, 327 (Miami River and Cape Florida).—Ihering and Ihering, Av. Brazil, 1907, 96, part (Florida).

Rostrhamus sociabilis Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 38 (Florida).—Baird, Cat. North Amer. Birds, 1859, No. 37.—Gray, Hand-list, i, 1869, 27, No. 251, part.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144, part; Man. North Amer. Birds, 1887, 226.—Coues, Key North Amer. Birds, 1872, 211; Check List North Amer. Birds, 1873, No. 334.—Maynard, Birds Eastern North Amer., 1878, 284, pl. 1.—Gurney, Ibis, 1879, 341, part (synonymy); 1882, 455, 456, in text, part (crit.; measurements).—American Ornithologists' Union, Check-list, 1886, No. 330; ed. 2, 1895, 127; ed. 3, 1910, 155.—Bendire, Life Hist. North Amer. Birds, i, 1892, 180, pl. 5, figs. 6, 7.—Scott, Auk, ix, 1892, 212 (Caloosahatchie River, Fla., breeding).—Fisher, Hawks and Owls of United States, 1893, 25.—Wayne, Auk, xii, 1895, 364, 366 (Aucilla River, nw. Florida; habits).—Sharpe, Hand-list, i, 1899, 269, part (Florida).—Reichenow, Die Vögel, i, 1913, 401, part.—Swann, Synopt. List Accip., pt. 3, 1920, 99, part (Florida).—Howell, Auk, xxxviii, 1921, 256 (Royal Palm Hammock, Fla.; rare summer res.).—Bailey, Birds Florida, 1925, 67, pl. 36 (fig.; distr.; Florida).—Townsend, Auk, xliv, 1927, 550 (courtship habits).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 507 (tropical Florida; reduced in numbers).

Cymindes sociabilis Oberholser, Proc. Biol. Soc. Washington, xxxv, 1922, 79, part; Auk, xl, 1923, 679, part; xli, 1924, 593, part (syn.).

Rosthramus leucopygus (not *Cymindes leucopygus* Spix) Sharpe, Cat. Birds Brit. Mus., i, 1874, 328, part (Florida).

Rostrhamus sociabilis plumbeus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 208, 209 (Everglades, Fla.; coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 427.—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 490; Key North Amer. Birds, ed. 2, 1884, 523.—Bailey, Auk, i, 1884, 95 (Everglades; descr. nest and eggs; breeding habits).—Gurney, List Diurn. Birds Prey, 1884, 85, part.—Swann, Synop. Accip., pt. 3, 1922, 156, part (Florida).—American Ornithologists' Union, Check-list, ed. 4, 1931, 64, part (distr.).—Peters, Check-list Birds of World, i, 1931, 201, part (distr.).—Howell, Florida Bird Life, 1932, 168 (Florida; habits, etc.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras; Laguna Toloa, Lake

[74] Ten specimens, except for tarsus, where only 6 specimens.

Vojoa, and Tigre Island).—Griscom, Auk, l, 1933, 298 (Costa Rica, Bebedero; 2 spec.; excessively local in Central America).—Nelson and Goldman, Proc. Biol. Soc. Washington, xlvi, 1933, 193.—Farco, Wils. Bull., xlvi, 1934, 177, in text (Kissimmee Prairies, Fla., spec.).—Eliot and Loetscher, Auk, lii, 1935, 462, in text (Florida; nest building).—Van Tyne, Univ. Michigan Mus. Zool., Misc. Publ. 27, 1935, 17 (Flores, Petén, Guatemala; spec.; meas.).—Bond, Birds West Indies, 1936, 72, part (possibly in West Indies?).—Harper, Auk, liii, 1936, 386, in text (distr.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 70 (life hist.).—Lack, British Birds, xxxi, 1937, 133 (food).—Compton, Univ. California Publ. Zool., xlii, No. 3, 1938, 176, 185 (pterylosis).—Cottam and Knappen, Auk, lvi, 1939, 149, in text (Florida; spec.; food habits).—McCabe, Bird-Banding, x, 1939, 140, in text (food habits).—Sprunt, Auk, lix, 1942, 585, in text (Lake Okeechobee, Fla.; nesting).—Hill, Auk, lxi, 1944, 230 (meas).

Rostrhamus plumbeus Gurney, Ibis, 1879, 338, in text, part (Florida), 341, part (syn.); 1882, 455, 456, in text (crit.; measurements).

Cymindes sociabilis plumbeus Oberholser, Auk, xli, 1924, 593, part (syn.).

ROSTRHAMUS SOCIABILIS MAJOR Nelson and Goldman

Mexican Snail Kite

All plumages similar to corresponding stages of typical *sociabilis*, but larger.

Adult male.—Wing 370–382 (378.5), tail 187–202 (196.2), culmen from cere 30.5–32 (31.4 mm.) (3 specimens).

Subadult males.—Wing 367–380 (371.7); tail 190–198 (194); culmen from the cere 30–33 (31.7); culmen including cere 38–41 (39.7); tarsus 51–53 (52 mm.) (3 specimens).

Adult female.—Wing 365–372; tail 188–193; culmen from cere 29.5–31.0 mm. (2 specimens).

Range.—Lowlands of eastern Mexico in the province of Veracruz and the Petén district of northern Guatemala.

Type locality.—Catemaco, Veracruz, Mexico.

Rostrhamus sociabilis Moore, Proc. Zool. Soc. London, 1859, 52 (Petén, Guatemala).—Sclater and Salvin, Ibis, 1859, 219 (Petén and Pacific coast district, Guatemala); Nom. Av. Neotr., 1873, 121, part (Mexico).—Gray, Hand-list, i, 1869, 27, No. 251, part.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144, part.—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173 (common names; Mexico).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7, 8, 1894, 224 (Veracruz, Mexico).—Sharpe, Hand-list, i, 1899, 269, part (e. Mexico).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 99, part (San Andreas Tuxtla and Cosamaloapam, Veracruz; Petén, Guatemala).—Reichenow, Die Vögel, i, 1913, 401, part.—Swann, Synopt. List Accip., pt. 3, 1920, 99, part (e. Mexico).

Rosthramus sociabilis Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region of Veracruz).

Cymindes sociabilis Oberholser, Proc. Biol. Soc. Washington, xxxv, 1922, 79, part; Auk, xl, 1923, 679, part; Auk, xli, 1924, 593, part (syn.).

Cymindes sociabilis plumbeus Oberholser, Auk, xli, 1924, 593, part.

Rostrhamus sociabilis subsp. *plumbeus*? Gurney, List Diurn. Birds Prey, 1884, 85, part.

Rostrhamus sociabilis plumbeus Swann, Synop. Accip., pt. 3, 1922, 156, part (e. Mexico).—Peters, Check-list Birds of World, i, 1931, 201, part (distr.).—American Ornithologists' Union, Check-list, ed. 4, 1931, 64, part (distr.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 161 (distr.; Guatemala).—Van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, xxvii, 1935, 17 Petén, Guatemala).

Rostrhamus sociabilis major Nelson and Goldman, Proc. Biol. Soc. Washington, xlvi, 1933, 193 (orig., descr.; distr.).—Swann, Monogr. Birds Prey, ii, 1934, 250.—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 199, 202 (Pacaitun, Yucatán).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 27 (Mexico: Campeche, Palizada, and El Vapor; spec.; meas.).

ROSTRHAMUS SOCIABILIS LEVIS Friedmann

Cuban Snail Kite

All plumages similar to corresponding stages of typical *sociabilis*, but with slightly longer culmen.

Adult male.—Wing 350–371 (360.5); tail 186.5–188.5 (187.5); culmen from cere 25–25.5 (25.2); culmen including cere 33.2–35.5 (34.3); tarsus 55.5–57 (56.2 mm.) (2 specimens).

Adult female.—Wing 365; tail 187.5; culmen from cere 26; culmen including cere 33; tarsus 56.5 mm. (1 specimen).

Range.—Cuba (Lake Ariguanabo; Canto Valley) and the Isle of Pines; becoming rarer as the marshes are being drained.

Type locality.—Cuba.

Rostramus sociabilis (not *Herpetotheres sociabilis* Vieillot, 1818) d'Orbigny, *in* La Sagra, Hist. Nat. Cuba, Ois., 1839, Spanish ed., 30, French ed., 15.—Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

Rostrhamus sociabilis Gundlach, Repert. Fisico Nat. Cuba, i, 1865–66, 222; Journ. für Orn., 1871, 362 (Cuba; habits); Contr. Orn. Cubana, 1876, 37; Orn. Cubana, 1895, 14.—Gray, Hand-list, i, 1869, 27, No. 251, part.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144, part.—Gurney, Ibis, 1879, 341, part (syn.); 1882, 455, 456, in text, part (crit.; meas.).—Cory, Auk, iv, 1887, 47 (Cuba); Birds West Indies, 1889, 205 (Cuba); Cat. West Indian Birds, 1892, 98 (Cuba; Isle of Pines).—Bangs and Zappey, Amer. Nat., xxxix, 1905, 191 (Isle of Pines).—Todd, Ann. Carnegie Mus., x, 1916, 192 (Isle of Pines).—Swann, Synopt. List Accip., pt. 3, 1920, 99, part (Cuba).

Rosthramus sociabilis Gundlach, Cat. Aves Cubana, Anales Soc. Esp. Hist. Nat., ii, 1873, 98 (Cuba).—Cory, List Birds West Indies, rev. ed., 1886, 22 (Cuba).—Ihering and Ihering, Av. Brazil, 1907, 96, part ("Antilles," etc.).

Cymindes sociabilis Oberholser, Proc. Biol. Soc. Washington, xxxv, 1922, 79, part; Auk, xl, 1923, 679, part; Auk, xli, 1924, 593, part (syn.).

Cymindes sociabilis plumbeus Oberholser, Auk, xli, 1924, 593 part (syn.).

Rosthramus hamatus Cabanis, Journ. für Orn., 1854, p. lxxx (Cuba).—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Gundlach, Journ. für Orn., 1861, 322, 402 (Cuba; crit.).

Rosthramus leucopygus (not *Cymindes leucopygus* Spix) Sharpe, Cat. Birds Brit. Mus., i, 1874, 328, part ("Antilles").

Rostrhamus plumbeus Gurney, Ibis, 1879, 338, in text, part (Cuba), 341, part (syn.).

Rostrhamus sociabilis subsp. *plumbeus*? Gurney, List. Diurn. Birds Prey, 1884, 85, part.

Rostrhamus sociabilis plumbeus Swann Synop. Accip., pt. 3, 1922, 156, part (Cuba).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 48 (Cuba; habits).—American Ornithologists' Union, Check-list, ed. 4, 1931, 64, part (distr.).—Peters, Check-list Birds of World, i, 1931, 201, part (distr.).

Rostrhamus sociabilis levis Friedmann, Proc. Biol. Soc. Washington, xlvi, 1933, 199 (orig. descr.; distr.).—Bond, Birds West Indies, 1936, 72, in text, and footnote (w. Cuba; Isle of Pines; crit.; descr.), 414; Check List Birds West Indies, 1940, 21 (Cuba; locally common in w. Cuba; Isle of Pines, local and rather rare); ed. 2, 1945, 21.—Barbour, Mem. Nuttall Orn. Club, ix, 1943, 36 (Cuba; food habits).

Subfamily Accipitrinae: Goshawks, Bird Hawks, and Their Allies

Accipitrinae Coues, Key North Amer. Birds, ed. 5,1903,657.—Hartert, Vög. pal. Fauna, ii, 1913,1087.—Peters, Check-List Birds of World, i, 1931, 205.—Wetmore, Smith. Misc. Coll., xcix, no. 4, 1940, 34.

Coracoids not overlapping at sternum; nasal septum not completely ossified; upper portion of anterior face of tarsometatarsus with no bony ring; outer (fourth) toe not reversible; claws graduated in size from that of the hallux (largest) to that of the outer (fourth) toe (smallest), not contracted to their under surface; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; cervical vertebrae 13 to 14; caeca minute; palate desmognathous; sides of head densely feathered except around the eyes, which are overhung by a bare superciliary plate of the lachrymal, and have a bare space beneath the lower lid, the lores sparsely feathered; bill without tooth or notch, but usually festooned, relatively short and deep, its depth at base three-quarters as long as, equal to, or exceeding the chord of the culmen, the nostril horizontally ovate to nearly circular, relatively large; upper outline of cere strongly ascending basally; wing rather short and much rounded, the longest primary exceeding the distal secondary by not more than two-fifths of the length of wing; tarsus and toes variable in relative proportions, but tarsus always longer than the middle toe and approximately equal to the tibia in length; tarsus usually scutellate, but sometimes booted; plumage relatively firm.

Besides the large cosmopolitan genus *Accipiter* and the Neotropical *Heterospizias* this subfamily includes three small genera of Old World hawks: *Erythrotriorchis* Sharpe, *Melierax* Gray, and *Urotriorchis* Sharpe. The genus *Accipiter* is one of the largest and most widely distributed of all falconiform genera.

Genus ACCIPITER Brisson

Accipiter Brisson, Orn. i, 1760, 28, 310. (Type, by tautonomy, *Accipiter* Brisson=*Falco nisus* Linnaeus.)

Nisus Lacépède, *in* Daudin, Traité d'Orn., i, 1800, 425. (Type, "*Epervier*"=*Falco nisus* Linnaeus, Cuvier, Leçons Anat. Comp., i, 1800, second tableau, "Eperviers.")—Lacépède, Mem. d'Inst., iii, 1801, 506.

Ierax Leach, Syst. Cat. Mam. Birds Brit. Mus., 1816, 10. (Type, by monotypy, *I. fringillarius* Leach=*Falco nisus* Linnaeus.)

Aesalon Morris, *in* N. Wood's Naturalist, ii, No. 9, June, 1837, 123. (Type, by monotypy, *A. fringillarius* Wood=*Falco nisus* Linnaeus.)

Cooperastur Bonaparte, Rev. et Mag. de Zool., vi, 1854, 538. (Type, as designated by Gray, 1855, *Falco cooperi* Bonaparte.)

Leptohierax Sundevall, Öfv. Svenska Vet.-Akad. Förh., xxxi, No. 2, 1875 (1874), 24. (Substitute for *Cooperastur* Bonaparte, on grounds of purism.)

Lepthierax (emendation) Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 254.

Hierax (emendation) Agassiz, Nom. Zool. Index Univers., 1846, 182.

Dinospizias Cabanis, Journ. für. Orn., xxii, 1874, 228. (Type, by monotypy, *Astur pectoralis* (Cuvier).)

Paraspizias Mathews, Birds Australia, v, 1915, 74. (Type, by original designation, *Sparvius cirrhocephalus* Vieillot.)

Aerospiza Roberts, Ann. Transvaal Mus., viii, 1922, 208. (Type, by original designation, *Falco tachiro* Daudin.)

Neonisus Roberts, Ann. Transvaal Mus., viii, 1922, 208. (Type, by original designation, *Accipiter melanoleucus* Smith.)

Astur Lacépède, Tableaux Ois., 1799, 4. (Type, as designated by Vigors, 1824, *Falco palumbarius* Linnaeus=*F. gentilis* Linnaeus.)

Aster (emendation) Swainson, Classif. Birds, i, 1836, vii, 89.

Daedalion Savigny, Descr. Égypte, Hist. Nat. i, 1809, 69, 92. (Type, as designated by Gray, 1840, *Falco palumbarius* Linnaeus=*F. gentilis* Linnaeus.)

Daedalium (emendation) Agassiz, Index Zool., 1846, 116.

Daedalia (emendation) Bonaparte, Rev. Mag. Zool., vi, 1854, 537.

Sparvius Vieillot, Analyse, 1816, 24. (Type, by original designation, "*Autour*" Buffon=*Falco gentilis* Linnaeus, "Epervier.")

Rhyncomegas Bonaparte, Compt. Rend., xxxvii, 1853, 809. (Included spec.= *brachypterus* Temminck and *dynastes* Verreaux.)

Rhynchomegus (emendation) Bonaparte, Rev. et Mag. Zool., ser. 2, vi, Oct. 1854, 537.)

Sparverius (emendation) d'Orbigny and Lafresnaye, Mag. Zool., vii, 1837, 5.

Asterias Morris, *in* N. Wood's Naturalist, ii, No. 9, 1837, 123. (Type, by monotypy, *A. palumbarius* Morris=*Falco gentilis* Linnaeus.)

Phabotypus Gloger, Hand- und Hilfsbuch, 1842 (1841), 211. (New name for *Astur* Lacépède.)

Hieraspiza Kaup, Classif. Säugeth. und Vögel, 1844, 116. (Type, by monotypy, *Falco virgatus* Temminck, Mathews says type is *Falco caerulescens* Linnaeus (*Ierax*)): Isis (Oken) 1847, 169; Mus. Senckenb., iii, Heft 3, 1845, 259).—Gray, Hand-list, i, 1869, vi, 33.

Hieracospiza (emendation) Agassiz, Index Zool., 1846, 182.

Hieraspizia (emendation) Kaup, *in* Jardine's Contr. Orn., 1850, 63.

Hierospiza (emendation) Reichenbach, Av. Syst. Nat., Vög. 1853, 6.

Hiracospizias (emendation) Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 253.

Ieraspizia (emendation) Bonaparte, Compt. Rend., xxxvii, 1853, 810.
Ierospizia (emendation) Bonaparte, Bull. Soc. Linn. Normandie, ii, 1857, 29.
Jeraspizia (emendation) Kaup, Archiv. für Naturg., 1850, *i* 34.
Teraspiza (emendation) Kaup, Proc. Zool. Soc. London, 1867, 171.
Terospiza (emendation) Giebel, Thesaurus Orn., iii, 1877, 606.
Teraspizias (emendation) Blyth, Journ. Asiat. Soc. Bengal, xliv, extra No., 1875, 62, 167.
Hieraspizias (emendation) Ridgway, U. S. Geol. and Geogr. Surv., Bull. 2, 1876, 92.
Tachyspiza Kaup, Classif. Säugeth. und Vögel, 1844, 116. (Type, by original designation, *A. soloensis* (Horsfield)); Mus. Senckenb., iii, Heft 3, 1845 (=1844), 259).
Lophospiza Kaup, Classif. Säugeth und Vögel, 1844, 118. (Type, by original designation, *A. trivirgatus* Reinw.)
Leucospiza Kaup, Classif. Säugeth und Vögel, 1844, 119. (Type, by original designation, *A. novae-hollandiae* (Gmelin).)
Nisastur Blyth, Ann. Mag. Nat. Hist., xiv, 1844, 35. (Type, by original designation, *A. badius* (Gmelin).)
Urospiza Kaup, Mus. Senckenb., iii, 1845, 259. (Type, by original designation, *A. radiatus* Temminck=*A. fasciatus* Vigors and Horsfield.)
Scelospiza Kaup, Isis, 1847, 173. (Type, by original designation, *A. francescii* A. Smith.)
Eunisus Bonaparte, Rev. Mag. Zool., 1854, 538. (Type, by subsp. designation (Richmond, Proc. U. S. Nat. Mus., liii, 1917, 590) *A. sphenurus* Rüppell.)
Lophospizias (emendation) Gurney, Ibis, 1875, 355.
Scelospizias (emendation) Gurney, Ibis, 1875, 357.—Dubois, Syn. Avium, ii, fasc. 12, 1902, 840.
Sceleospizia (emendation) Kaup, *in* Jardine's Contr. Ornith., 1850, No. 3, 63.
Erythospizia Kaup, Proc. Zool. Soc. London, 1867, 172. (Type, by first mention, *Nisus trinotatus* Schlegel.)
Lophospizia (emendation) Kaup, Isis, Jahrg. xli, heft 10, 1848, 774.
Tachyspizias (emendation) Dubois, Syn. Avium, ii, fasc. 12, 1902, 841.
Leucospizias (emendation) Salvadori, Ann. Mus. Civ. Genova, xii, 1878, 37.
Urospizias (emendation) Salvadori, Ann. Mus. Civ. Genova, xii, 1878, 37, 38.
Tachyspizia (emendation) Kaup, *in* Jardine's Contr. Ornith. 1849, Nos. 6 and 7 (1850).
Uraspiza (emendation) Kaup, Proc. Zool. Soc. London, 1867, 175.
Urospizia (emendation) Kaup, Isis, 1848, 772.
Erythrospizias (emendation) Gurney, Ibis, 1875, 364.—Dubois, Syn. Avium, ii, fasc. 12, 1902, 841.

Large to very small, slender, round-winged, long-tailed, slender-legged Accipitridae (wing about 131–381 mm.) with three to five outer primaries sinuated on the inner web (five in subgenera *Accipiter* and *Astur*, three to four in subgenus *Hieraspiza*); tail from two-thirds as long as wing to four-fifths as long; outer toe not extending beyond end of second phalanx of middle toe (subgenus *Accipiter*) or extending to the base of third phalanx of middle toe (subgenera *Astur* and *Hieraspiza*).

Bill relatively short and deep, its depth at base equal to length (chord) of culmen (subgenera *Accipiter* and *Hieraspiza*) or to about

three-fourths of length of culmen (subgenus *Astur*), and equal to or much greater than its width at same point; culmen regularly to strongly decurved from base, indistinctly or distinctly ridged, the tip of maxilla produced into a moderate to strong and acute unguis; gonys about half as long as culmen, convex, ascending terminally; maxillary tomium strongly sinuated, concave immediately behind unguis; then convex, the lobe thus produced sometimes angular; rictus nearly on vertical line with anterior angle of eye or a little anterior thereto; cere long (about two-thirds as long, on top, as culmen), broad across top, strongly ascending proximally and arched basally, where extending a considerable distance between, though mostly covered by, feathers of frontal antiae, its anterior outline variable, sometimes emarginate at base of culmen, more or less convex in front of nostril, sometimes straight across base of culmen and from thence extending downward and backward in a nearly straight line; nostril horizontally ovate, or with upper edge nearly straight, the lower strongly convex, situated above middle of cere. Wing relatively rather short, much rounded, the longest primary exceeding distal secondary by about one-third to nearly two-fifths the length of wing; fourth or fourth and fifth primary longest, the first not longer than ninth, sometimes equal to tenth; three to five outer primaries with inner webs abruptly sinuated. Tail two-thirds to slightly less than three-fourths to four-fifths as long as wing, its tip truncate to moderately rounded. Tarsus between one-fourth and one-third as long as wing, more than one-fourth to more than two-fifths as long as tail, relatively slender, the acrotarsium and planta tarsi each with a single row of broad transverse scutella (these sometimes fused into a continuous smooth plate in adult males of the smaller species), the upper portion of the acrotarsium feathered for from about one-third to one-half its length; middle toe three-fifths to nearly two-thirds as long as tarsus; outer toe not extending beyond distal end of second phalanx of middle toe, or to beyond the middle of the third phalanx (subgenus *Astur*), the inner not extending beyond middle of second phalanx, or, in subgenus *Astur*, reaching to a little beyond base of third phalanx of middle toe (in the smaller species not extending beyond distal end of first phalanx); hallux a little shorter than inner toe, its claw about as long as or decidedly but slightly longer than the digit and one-third or more longer than that of outer toe; claws moderately large, rather slender, strongly curved and very acute, compressed, flattened and grooved beneath; web between basal phalanges of outer and middle toes well developed.

Plumage and coloration.—Plumage soft but rather firm, with feathers distinctly outlined (blended in subgenus *Hieraspiza*); remiges and rectrices firm, but not very rigid; loreal region rather densely covered with bristlelike feathers, the antrorse anterior ones partly covering

nostrils; outer side of thighs with feathers moderately elongated, plumelike. Adults plain gray becoming darker, sometimes black, on pileum, dark brown, or cinnamon-rufous above, the tail banded with black; color of underparts variable, usually barred with white and cinnamon-rufous or rufous-brown, rarely white broken only by dusky shaft streaks or narrow faint stripes on breast and sides and with thighs cinnamon-rufous, sometimes uniform rufous or slate-gray, with cinnamon-rufous on thighs and under tail coverts white. Young dusky to grayish brown above, the feathers margined with rusty or buffy, beneath white on buff, usually with longitudinal (rarely with transverse) markings of brown, sometimes immaculate.

Range.—Nearly cosmopolitan, but absent from Lesser Antilles and Galápagos Archipelago. (Seven species in North and Middle America.)

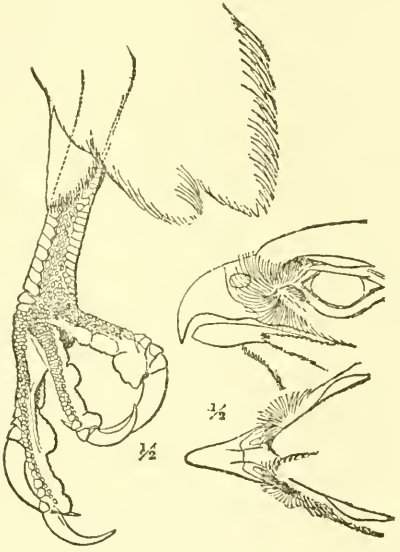

FIGURE 13.—*Accipiter* (*Astur*) *gentilis.*

KEY TO THE SPECIES AND SUBSPECIES OF ACCIPITER [75]

a. Inner toe (without claw) equal to two proximal joints of middle toe; wing over 280 mm.

b. Whole plumage white, with faint bars, streaks, or mottlings of pale gray (northeast Siberia east of Yana River; Kamchatka).

A. gentilis albidus (extralimital)[76]

[75] Included in this key are all the forms known to occur in the regions covered by this work and all those extralimital forms found in closely adjacent countries, that possibly may be found as accidental visitors.

[76] **Aster palumbarius albidus** Menzbier, Orn. Geogr. Eur. Russia, 1882, 438 (Amurland and Kamtschatka).—*Astur candidissimus* Dybowski, Bull. Soc. Zool.

bb. Upperparts sooty black, ashy brown, or bluish gray.

c. Underparts white, barred with blackish brown.

d. Larger, wing, ♂, 315–334; ♀ 355–380 mm. (Scandinavian Peninsula, Latvia, and western Russia).

A. gentilis gentilis, adult (extralimital)[77]

dd. Smaller; wing, ♂, 280–334; ♀ 323–367 mm.

e. General coloration darker, the occiput, nape and interscapulars especially, with much blackish; size slightly smaller (wing, ♂, 280–300; ♀, 323–339 mm.) (Japan and Sakhalin).

A. gentilis fujiyamae, adult (extralimital)[78]

ee. Coloration paler, the occiput, nape, and interscapulars with little blackish; size slightly larger (wing, ♂, 285–334, ♀ 344–367 mm.) (western and central Europe east to Russia).

A. gentilis gallinarum, adult (extralimital)[79]

cc. Underparts white or tawny white, not barred, but freckled, vermiculated or streaked.

d. Underparts white, vermiculated or flecked with blackish brown, and with some fine blackish shaft streaks.

e. Paler; whole back bluish gray (mainland of North America).

A. gentilis atricapillus, adult (p. 150)

ee. Darker, back more or less sooty blackish, or very dark gray (Queen Charlotte Islands)..... **A. gentilis laingi**, adult (p. 162)

dd. Underparts white more or less tinged with tawny, and broadly streaked with dark brown.

e. Mantle darker (between clove brown and fuscous).

f. Breast stripes very broad and heavy and dark-fuscous.

A. gentilis laingi, immature (p. 162)

France, viii, 1883, 353 (Kamtschatka); Stejneger, Orn. Explor., 1885, 318; Sharpe, Hand-list, i, 1899, 248.—*Astur caesius* Buturlin, Psov. i Ruzejn Okhota, 1907, No. 7; Orn. Monatsb., 1907, 80.—*Astur gentilis albidus* Swann, Synop. List Accip., pt. 1, 1919, 20; Monogr. Birds Prey, i, pt. 3, 1925, 187.—*Accipiter gentilis albidus* Hartert, Vög. pal. Fauna, ii, pt. 3, 1914, 1149; Peters, Check-list Birds of World, i, 1931, 207.

[77] **Falco gentilis** Linnaeus, Syst. Nat., ed. 10, i, 1758, 89 (ex Fauna Svecica).—*Falco palumbarius* Linnaeus, Syst. Nat., ed. 10, i, 1758, 91 (Europe); Kleinschmidt, Berajah, 1923, art. *F. palumbarius*.—*Falco albescens* Boddaert, Tabl. Pl. Enl., 1783, 25.—*Astur palumbarius* Sharpe, Cat. Birds Brit. Mus., i, 1874, 95; Hand-list, i, 1899, 248.—*Astur gentilis* Swann, Synop. Accip., pt. 1, 1921, 32; Monogr. Birds Prey, i, pt. 3, 1925, 178.—*Accipiter gentilis gentilis* Hartert, Vög. pal. Fauna, 1914, 1146; Peters, Check-list Birds of World, i, 1931, 206.

[78] **Astur gentilis schvedowi** Swann, Synop. Accip., pt. 1, 1921, 32 (part).—*Astur gentilis fujiyamae* Swann and Hartert, Bull. Brit. Orn. Cl., xliii, 1923, 170; Swann, Monogr. Birds Prey, i, pt. 3, 1925, 185; Peters, Check-list Birds of World, i, 1931, 208.

[79] **Astur gallinarum** Brehm, Ornis, iii, 1827, 2 (Germany).—*Astur gentilis gentilis* Swann, Synop. Accip., pt. 1, 1921, 32 (part).—*Astur gentilis dubius* Lönnberg, Ibis, 1923, 213.—*Astur gentilis gallinarum* Swann, Monogr. Birds Prey, i, pt. 3, 1925, 182.—*Accipiter gentilis gallinarum* Hartert, Vög. pal. Fauna, addenda, 1922, 2205; Ibis, 1923, 531; Peters, Check-list Birds of World, i, 1931, 206.

ff. Breast stripes paler grayish fuscous to clove brown.
A. gentilis gentilis, immature (extralimital)

ee. Mantle paler, between hair brown and fuscous.

f. Larger (wing of adult ♂ 312–354; ♀ 321–368 mm.)[80]
A. gentilis atricapillus, immature (p. 151)

ff. Smaller (wing of adult ♂ 280–300; ♀ 323–339 mm.)[80]
A. gentilis fujiyamae, immature (extralimital)

aa. Inner toe (without claw) equal to, or only slightly longer than the proximal joint of the middle toe; never equal to the two proximal joints of the middle toe; wing less than 300 mm.

b. Black bands on tail decidedly narrower than the paler interspaces.

c. Tail square, or scarcely rounded.

d. Upperparts russet.

e. Larger, wing over 160 mm. (Colombia and Venezuela).
A. collaris, immature (extralimital)[81]

ee. Smaller, wing under 160 mm.

f. (Venezuela to Brazil)--**A. superciliosus superciliosus**, immature (extralimital)[82]

ff. (Nicaragua to Colombia).
A. superciliosus fontanieri, immature (p. 182)

dd. Upperparts brown or gray.

e. Underparts more or less regularly barred.

f. Cheeks more or less rufescent.

g. Banding on upper surface of tail not sharply defined.

h. Abdomen mainly white; smaller (wing ♂ 141–153; ♀ 180–186 mm.) (Hispaniola)----------**A. striatus**, adult (p. 198)

hh. Abdomen with at least some dark bars; larger (wing, ♂ 190–208; ♀ 230–242 mm.) (Europe east to Russia, south to the Mediterranean)----------**A. nisus**, adult (extralimital)[83]

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[80] These measurements are of adults, given merely to show relative size differences. Very young birds of either race probably run smaller.

[81] **Micronisus collaris** Kaup, MS. in Brit. Mus.; Sclater, Ibis, 1860, 148.—*Accipiter collaris* Sclater, Ibis, 1860, 148, pl. 6; Gray, Hand-list, i, 33; Sharpe, Cat. Birds Brit. Mus., i, 1874, 144; Swann, Synopt. List Accip., 1919, 33; Peters, Check-list Birds of World, i, 1931, 219.—*Astur collaris* Swann, Synop. Accip., pt. 1, 1921, 45; Monogr. Birds Prey, i, pt. 4, 1925, 250.

[82] **Falco superciliosus** Linnaeus, Syst. Nat., ed. 12, i, 1766, 128 (Surinam).—*Accipiter tinus* Sharpe, Cat. Birds Brit. Mus., i, 1874, 139; Hand-list, i, 1899, 252.—*Accipiter superciliosus* Brabourne and Chubb, Birds South Amer., i, 1912, 65; Swann, Syn. Accip., pt. 1, 1921, 53; Monogr. Birds Prey, i, pt. v, 1926, 295.—*Accipiter superciliosus superciliosus* Peters, Check-list Birds of World, i, 1931, 218.

[83] *A. nisus* and *A. striatus* are very similar and some time may be considered one species. **Falco nisus** Linnaeus, Syst. Nat., ed. 10, i, 1758, 92; ed. 12, i, 1766, 130; Kleinschmidt, Berajah, 1923.—*Sparvius nisus* Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 319.—*Astur nisus* Dubois, Ois. Belg., 1854, pls. 15, 16; Schlegel, Vog. Nederl., 1854, pls. 13, 14.—*Accipiter nisus* Pallas, Zoogr. Rosso-Asiat, i, 1827, 370; Sharpe, Cat. Birds Brit. Mus., i, 1874, 132; Hand-list, i, 1899, 252.—*Accipiter nisus nisus* Hartert, Vög. pal. Fauna, ii, 1914, 1151; Swann, Synop. Accip., pt. 1, 1921, 50; Monogr. Birds Prey, i, pt. iii, 1925, 273; Witherby, et al., Practical Handb Brit. Birds, ii, 1921, 162; Peters, Check-list Birds of World, i, 1931, 219.

gg. Banding on upper surface of tail sharply defined.
h. Abdomen mainly white.
i. Tibiae nearly white, with only narrow rusty bars; no white spots on the tertials (Cuba).
A. striatus fringilloides, adult (p. 200)
ii. Tibiae broadly barred, or uniform, rusty; large concealed white spots on the tertials.
j. Dark bands on tail more than half as wide as the paler interspaces; upperparts very dark; head hardly darker than the upper back (Puerto Rico).
A. striatus venator, adult (p. 201)
jj. Dark bands on tail about half the width of the paler interspaces; upperparts paler; head distinctly darker than the upper back.
k. Breast, sides, and thighs plain light brick red (New Mexico—Chihuahua border south to Jalisco and Veracruz) ------ **A. striatus suttoni**, adult (p. 195)
kk. Breast, sides, and thighs marked with ochraceous-tawny or brownish (northwestern Alaska, eastward to Quebec and Newfoundland, south to Baja California, Texas, the Gulf coast, and northern Florida) ---------- **A. striatus velox**, adult (p. 184)
A. striatus perobscurus, adult (p. 197)
hh. Abdomen barred with rusty.
i. Cheeks rusty brown with distinct fine dark shaft streaks (northwestern Alaska, eastward to Quebec and Newfoundland, south to Baja California and northern Mexico, Texas, Gulf coast to northern Florida).
A. striatus velox, adult (p. 184)
A. striatus perobscurus, adult (p. 197)
ii. Cheeks bright rusty, with indistinct shaft streaks (Europe, east to Russia, south to the Mediterranean).
A. nisus, ♂ adult (extralimital)
ff. Cheeks not rufescent.
g. Cheeks black and white ---------- **A. collaris**, adult (extralimital)
gg. Cheeks tawny, streaked with dusky (Nicaragua to Colombia).
A. superciliosus fontanieri, immature (p. 182)
ee. Underparts undulated or streaked with brown.
f. Underparts undulated with brown.
g. Smaller (wing under 170 mm.) (Cuba).
A. striatus fringilloides, immature [84] (p. 200)
gg. Larger (wing over 180 mm.).
A. nisus, ♂ immature (extralimital)
ff. Underparts streaked with brown; tibiae variously spotted.
A. striatus velox, immature (p. 185)
cc. Tail decidedly, or at least, distinctly rounded.
e. Tail distinctly but not very greatly rounded.
f. Smaller, wing under 220 mm. (s. Canada to n. Mexico).
A. cooperii, ♂ (p. 167)

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[84] No immature specimens of *A. striatus striatus* or of *A. striatus venator* have been available for study, but probably they would be difficult, if not impossible, to tell from corresponding specimens of *A. striatus fringilloides*.

ff. Larger, wing over 220 mm.....**A. nisus** ♀ (extralimital)

ee. Tail decidedly rounded.

f. Underparts with little white, the breast uniform gray, the abdomen rufous (sometimes with white margins to the feathers) (Cuba).....**A. gundlachi**, adult (p. 180)

ff. Underparts with much white, breast not uniform gray.

g. Underparts, including the breast and thighs, white and rufous in transverse spots or bars (s. Canada to n. Mexico).

A. cooperii, adult (p. 167)

gg. Underparts white, streaked with brown.

h. Underparts with white predominating (s. Canada to n. Mexico).....**A. cooperii**, immature (p. 169)

hh. Underparts with brown predominating (Cuba).

A. gundlachi, immature (p. 180)

bb. Black bands on tail not decidedly narrower than the paler interspaces.

c. Tail decidedly rounded (middle rectrices more than 10 mm. longer than the outer rectrices).

d. Underparts gray, tibiae rufous.

e. Under wing coverts white, rufous along the carpal band.

f. Larger (wing ♀ 260 mm.), and darker (southeastern Mexico).

A. bicolor fidens, adult (p. 166)

ff. Smaller (wing, ♂, 209–217; ♀ 235–250 mm.), and paler (Yucatán, through central America to Colombia, the Guianas and Amazonia).....**A. bicolor bicolor**, adult (p. 163)

ee. Under wing coverts not white.

f. Under wing coverts rufous.

A. bicolor pileatus, adult (extralimital) [85]

dd. Underparts white (sometimes with breast rufous), rich fawn color, or pale rufous.

e. Breast and nuchal collar deep rufous, abdomen white, heavily barred with black.....**A. pectoralis**, adult ♂ [86] (extralimital) [87]

ee. Breast concolorous with abdomen, neither barred (Mexico to Brazil).

A. bicolor, immature.[88] (p. 163)

cc. Tail square, or only slightly rounded (middle tail feathers less than 10 mm. longer than the outer ones).

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[85] **Falco pileatus** Temminck, Planches Col., livr. 35, 1823, pl. 205 (Brazil=Ilha Cachoeirinha, Rio Belmonte, Bahia, *fide* Hellmayr, Publ. Field Mus., zool. ser., xii, 1929, 458).—*Cooperastur pileatus* Bonaparte, Rev. Mag. Zool., vi, 1854, 538.—*Nisus pileatus* Lesson, Man. d'Orn., i, 1828, 98; Schlegel, Mus. Pays-Bas, Astures, 1862, 36.—*Accipiter pileatus* Sharpe, Cat. Birds Brit. Mus., i, 1874, 153; Hand-list, i, 1899, 254; Swann, Synop. Accip., pt. 1, 1921, 61.—*Accipiter bicolor pileatus* Swann, Monogr. Birds Prey, i, pt. 5, 1926, 334; Peters, Check-list Birds of World, i, 1931, 217.

[86] No females or young seen, but females are said to be similar to males but browner and paler above.

[87] **Falco pectoralis** Bonaparte, Rev. Mag. Zool., 1850, 490 (Brazil).—*Cooperastur pectoralis* Sclater, Ibis, 1861, 314, pl. 10; Sclater and Salvin, Nom. Av. Neotr., 1873, 120.—*Astur pectoralis* Sharpe, Cat. Birds Brit. Mus., i, 1874, 121; Swann, Synop. Accip., pt. 1, 1921, 45; Monogr. Birds Prey, i, pt. 4, 1925, 252.—*Dinospizias pectoralis* Brabourne and Chubb, Birds South Amer., i, 1912, 65.—*Accipiter pectoralis* Peters, Check-list Birds of World, i, 1931, 218.

[88] Races indistinguishable in this plumage.

d. Black and gray bands on the tail about equal in width.

e. Underparts barred and marked with rusty brown; size smaller wing under 150 mm. (Puerto Rico)_**A. striatus venator**, adult (p. 201)

ee. Underparts white, with thighs buff (adult), or breast and sides faintly striped with pale brown; size larger (wing over 160 mm.) (Guatemala and Nicaragua).

A. chionogaster chionogaster (p. 202)

dd. Black bands on tail decidedly wider than the gray interspaces.

e. Tibiae uniform.

f. Underparts white, with thighs uniform rufous.

A. salvini [89] (extralimital).[90]

ff. Underparts mostly rufous (mountains of Venezuela, Colombia, Ecuador, Peru, and northwestern Bolivia).

A. chionogaster ventralis (extralimital) [91]

ee. Tibiae banded.

f. Smaller (wing 127–148 mm.), and darker; upperparts less suffused with dark gray (Costa Rica to northern and western Colombia)_____**A. superciliosus fontanieri**, adult (p. 182)

ff. Larger (wing 135–164 mm.) and paler; upperparts suffused with dark gray (Venezuela and the Guianas south to Brazil).

A. superciliosus superciliosus, adult (extralimital)

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[89] This is usually regarded as a form distinct from *A. chionogaster ventralis*, but it may be that the two are only phases of the same form. Their ranges appear to coincide (that is, both are recorded from Ecuador, cf. Chapman, Bull. Amer. Mus Nat. Hist., lv, 1926, 224, and there are specimens of both in the United States National Museum taken at the same locality in Venezuela). *A. salvini* agrees with *ventralis* in having the dark bands on the tail distinctly wider than the gray, and thus differs from *chionogaster*, but in its white underparts it agrees with *chionogaster*. A specimen from Valle, Venezuela, taken along with another having rufous underparts, is white below, but has traces of rufous, especially on the flanks. It seems, therefore, that *chionogaster* is a good race characterized by its paler tibiae and white underparts, and that it may be that the only other recognizable race is *ventralis* (of which *salvini* would be a synonym), characterized by its more rufous tibiae, and that *ventralis* has two phases. *A. erythronemius* seems to belong to the *nisus* group, rather than here. However, as these birds are extralimital to the present work, they are not of immediate concern and have been kept separate in this key.

[90] **Nisus salvini** Ridgway, U. S. Geol. and Geogr. Surv. Terr., Bull. 2, 1876, 121 (Merida, Venezuela).—*Accipiter salvini* Sharpe, Hand-list, i, 1899, 253; Brabourne and Chubb, Birds South Amer., i, 1912, 65; Swann, Synopt. List Accip., 1919, 36.—*Accipiter erythronemius salvini* Swann, Synop. Accip., pt. 1, 1921, 58; Monogr. Birds Prey, i, pt. 5, 1926, 316; Peters, Check-list Birds of World, i, 1931, 221.

[91] **Accipiter ventralis** Sclater, Proc. Zool. Soc. London, 1866, 303 (interior of Colombia); Sharpe, Cat. Birds Brit. Mus., i, 1874, 149; Hand-list, i, 1899, 253; Brabourne and Chubb, Birds South Amer., i, 1912, 65.—*Accipiter ventralis ventralis* Swann, Synop. Accip., pt. 1, 1921, 58; Monogr. Birds of Prey, i, pt. v, 1926, 319.—*Accipiter nigroplumbeus* Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 270.—*Accipiter ventralis nigroplumbeus* Swann, Synop. Accip., 1921, 59; Monogr. Birds Prey, i, pt. 5, 1926, 320.—*Accipiter erythronemius ventralis* Peters, Check-list Birds of World, i, 1931, 221.

ACCIPITER GENTILIS ATRICAPILLUS (Wilson)

American Goshawk [92]

Adult male.—Upperparts varying from deep gull gray (rarely) to slate-gray and deep neutral gray, becoming darker on the interscapulars, nape, occiput, and crown, the top of the head often being blackish slate to slate black and occasionally even a little blacker, the nape and sides of the crown so heavily mottled with white as to be more white than slate; upper wing coverts like the back, often tinged with mouse gray and hair brown; remiges fuscous, above indistinctly broadly barred with darker and fuscous on the inner webs; below broadly barred and mottled with whitish on the inner webs; five outermost primaries emarginated on their inner webs; fourth and fifth primaries the longest; the second (from the outside) between the sixth and seventh in length; rump and upper tail coverts like the back; tail similar but the rectrices tipped with whitish and crossed by four broad fuscous bands, the fuscous bands narrower, however, than the slate gray interspaces; tail slightly rounded, the lateral rectrices 18–26 mm., shorter than the median ones; lores, cheeks, and auriculars varying from dirty white streaked with blackish to nearly pure black, the superciliary stripes white more or less mottled with blackish slate; forehead occasionally whitish; entire underparts white thickly mottled, barred, or vermiculated with mouse gray to dark mouse gray, the feathers of the chin, breast, and abdomen with blackish shaft streaks, which, like the vermiculations, are very variable in width, the shaft streaks usually absent in the feathers of the sides, flanks, thighs, and the under tail coverts; under tail

[92] The variations of the goshawk cannot be considered understood in a final sense until adequate breeding material is studied from all parts of its range. In the case of no other North American hawk is our present combined museum material so incomplete, over 80 percent of the specimens being winter birds or migrants. While the treatment here accorded the species is all that I can do with any assurance, it may be pointed out that there may be a large, relatively pale form in northwestern Canada and Alaska (not in coastal, southern Alaska) which appears to migrate southeastward in autumn. Similarly, the status of the supposed western race, *striatulus*, is still to be definitely settled. Taverner's action in considering it synonymous with *atricapillus* is borne out by most of the facts, but it is just barely possible that part, at least, of the original type series of *striatulus* may be migrants or strays of the Queen Charlotte Island race, *laingi*. I agree with Taverner in "sinking" *striatulus* at least for the present and do not see much ground for thinking its status is apt to be changed. The fact remains, however, that the whole matter is not as clear cut as it might be. The only change I can foresee is that possibly the name *striatulus* may be considered an earlier one for *laingi*.

coverts varying from pure white to white more or less barred or vermiculated with mouse gray; under wing coverts white (usually a clearer, cleaner white than on the underparts generally) barred with grayish fuscous; bill bluish black; cere yellow; feet yellow, claws bluish black; iris red.

Adult female.—Similar to the male but larger, and, on the average, very slightly browner above and more coarsely vermiculated below, but the extremes of coloration in the two sexes are the same.

Immature male (second winter plumage).—Similar to that of adult but with the ventral markings averaging coarser and heavier, the pectoral feathers with broad fuscous-gray shaft streaks and some fairly wide brownish gray bars.

Immature female.—Similar to male, but larger.

Juvenal male (including first winter and following summer plumage).—Forehead and crown feathers with broad black shaft stripes, widely margined with from bright tawny to drab, the margins becoming paler, even to pure white, on the occiput and nape; interscapulars like the crown, but the tawny or drab areas much broader; scapulars, upper wing coverts, back, rump, and upper tail coverts dark grayish hair brown to fuscous edged with from pale tawny to drab to whitish and each feather with a concealed median area of the same color as the edges; remiges fuscous to pale fuscous, tipped with white, above banded with darker fuscous, below banded with white; rectrices grayish hair brown, tipped with white and crossed above by four to six broad fuscous bars, the bars narrower than the paler interspaces and narrowly edged with grayish; below whitish barred broadly with fuscous; lores, cheeks, and auriculars dirty white to pale cinnamon-buff, the feathers with fuscous or fuscous-black shaft stripes, giving the area a heavily streaked appearance; entire underparts white or dirty white more or less (sometimes not at all) suffused with pale cinnamon-buff on the chin, throat, breast, sides, and upper abdomen, the individual feathers with very broad shaft stripes varying from very dark hair brown to fuscous, the stripes becoming terminally markedly spatulated on the lower breast, abdomen, sides, flanks, and under tail coverts; the thighs and lower abdomen sometimes broadly barred due to the widening of the pear-shaped shaft streaks; bill, cere, and feet as in adults; iris pale yellow.

Juvenal female.—Similar to male, but larger.

Natal down.—None seen; said to be, " . . . at first white with some grayish tinge on back, and on front face; later more gray above" (Forbush).

Adult male.—Wing 303–354 (325.2); tail 226.5–280 (245.7); culmen from cere 20–26 (21.9); tarsus 67–82.5 (75.4); middle toe without claw 42.5–54.5 (47.5 mm.).[93]

Adult female.—Wing 321–368 (333.6); tail 250–301 (278.6); culmen from cere 21.5–26 (23.6); tarsus 72.5–95 (81.1); middle toe without claw 44.5–52 (49.8 mm.).[94]

Range.—Breeds from northwestern Alaska (Nulato, Yukon River, Kuskoquim, Kowak River, etc.), northwestern Mackenzie, northern Alberta, northern Keewatin, Ontario, Quebec, Newfoundland Labrador, Newfoundland, and Nova Scotia, south to California (Sequoia National Park), southern Arizona (San Francisco Mountains), New Mexico (Tres Piedras), Sonora, Chihuahua, and Jalisco in Mexico, northwestern Idaho (Fort Sherman), Saskatchewan, Michigan (to Roscommon County), northern New York (Adirondack Mountains), northern New England (south to central Massachusetts), and, in the mountains, to Pennsylvania and western Maryland and Tennessee.

Winters from central and western Alaska, British Columbia (north to the Cariboo district), Saskatchewan, Ontario, Quebec, and New-

[93] Twenty-seven specimens from all parts of the range. Although there are no constant geographical variations in size, the following data are of interest:

Locality	Number of specimens	Wing	Tail	Culmen	Tarsus
		Mm.	*Mm.*	*Mm.*	*Mm.*
Alaska	3	326–354 (340)	239–280 (260)	22.5–25.5 (24)	77.5–82.5 (79.5).
British Columbia, Athabasca, Saskatchewan.	3	321–323 (321.7)	244–257 (248.7)	20.5–21 (20.8)	75–77.5 (76.3).
Oregon, Idaho, Washington.	3	303–326 (316)	226.5–249 (237.3)	20–24 (22)	72.5–76.5 (74.9).
Arizona, California, New Mexico.	6	303–335 (321.1)	226.5–250 (242.1)	24–22 (21.4)	73–77.5 (75.9).
New York, New Jersey, Pennsylvania, Maryland.	9	312–331 (322.1)	230–272 (240.3)	21–26 (22.6)	67–77.5 (63.7).

[94] Twenty-two specimens:

Locality	Number of specimens	Wing	Tail	Culmen	Tarsus
		Mm.	*Mm.*	*Mm.*	*Mm.*
Alaska	4	359–368 (362)	280–301 (289.7)	22.5–25 (24)	82.5–95 (87.9).
Oregon	1	321	300	21.5	78.5.
Colorado	1	353	295		82.
New York, New Jersey, Maryland.	16	334–355 (344.8)	250–282 (273.4)	23–26 (23.8)	73.5–90 (79.5).

foundland, south to southern California (near San Diego) and the northern half or so of Mexico (Sonora, Sinaloa, Durango, Chihuahua, Guerrero), Texas, Oklahoma, Missouri, Iowa, Kentucky, Illinois, Indiana, Ohio, West Virginia, and Virginia; migration periodic and irregular.

Casual in Florida (near Tallahassee, Lake Iomonia, and Maximo Point, Pinellas Peninsula).

Accidental in Ireland (Strabane, County Tyrone; and Galtee Mountains, Tipperary); Scotland (Shechallion, Perthshire); and England (Parsonstown; Scilly Islands).

Type locality.—Near Philadelphia, Pa.

Falco novae-terrae Gmelin, Syst. Nat., i, pt. 1, 1788, 274 (Newfoundland; based on New Foundland Falcon Latham, Synop. Birds, i, 1781, 79. Pennant, Arctic Zool., 1785, ii, 178, 201).—Shaw, Gen. Zool., vii, 1809, 147 (Newfoundland).

Falco gentilis Gmelin, Syst. Nat., i, pt. 1, 1788, 270, part.

Falco atricapillus Wilson, Amer. Orn., vi, 1812, 80, pl. 52, fig. 3 (near Philadelphia, Pa.; coll. Peale's Mus.).—Vieillot, Nouv. Dict. Hist. Nat., xi, 1817, 109.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 346; Obs. Wilson's Amer. Orn., 1826 [7], [239].—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 85.—Schalow, Journ. für Orn., xxxix, 1891, 249 (n. Pacific coast, North America).

Sparvius atricapillus Vieillot, Encycl. Meth., iii, 1823, 1274.

Hierofalco atricapillus Cuvier, Règne Anim., ed. 2, i, 1829, 323.

Astur atricapillus Bonaparte, Oss. Cuvier, Règne Anim., 1830, 33; Geogr. and Comp. List, 1838, 5; Consp. Gen. Av., i, 1850, 31; Rev. Mag. Zool., vi, 1854, 538.—Jardine and Selby, Illustr. Orn., iii, 1835, pl. 121.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 87.—Kaup, *in* Jardine's Contr. Orn., 1850, 66.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 279; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 15 (Port Townsend, Fort Steilacoom, and Shoalwater Bay, Washington; Dallas, Oreg.; Nelson River, Hudson Bay).—Brewer, North Amer. Ool., i, 1857, 17, pl. 1, fig. 5.—Newberry, Rep. Pacific R. R. Surv., vi, pt. 4, 1857, 74 (San Francisco and s. California).—Bridges, Proc. Zool. Soc. London, 1858, 1 (Trinity Valley, n. Calif.).—Baird, Cat. North Amer. Birds, 1859, No. 14, part.—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 144 (Fort Dallas, Oreg.; Fort Steilacoom, Washington; habits).—Verrill, Proc. Essex Inst., iii, 1862, 140 (Oxford County, Maine, breeding).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 271 (Sitka, Nulato, on Yukon River and Kuskoquim, Alaska; descr. nest and eggs).—Gray, Hand-list, i, 1869, 269; Ibis, 1870, 292 (Sechallion, Perthshire, Scotland, winter 1869).—Brooke, Ibis, 1870, 538 (Galtee Mountains, Ireland, Feb. 1870); Zoologist, 1871, ser. 3, vi, 2525 (Ireland).—Cooper, Orn. California, Land Birds, 1870, 467.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 141; Proc. Boston Soc. Nat. Hist., xvi, 1874, 28, 329 (lower Wabash Valley, rare winter vis.); Field and Forest, 1877, 210 (Boulder County, Colo., breeding); Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 433; Man. North Amer. Birds, 1887, 228.—Coues, Key North Amer. Birds, 1872, 212; Check List North Amer. Birds, 1873, No.

340, part; ed. 2, 1882, No. 496; Birds Northwest, 1874, 338; Key North Amer. Birds, ed. 2, 1884, 530.—Schlegel, Mus. Pays-Bas, ii, No. 36, livr. 10, 1873, 61 (crit.).—Snow, Birds Kansas, 1873, 1 (Lawrence).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; winter; common).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 97 (Brit. Columbia, w. side Rocky Mountains; Repulse Bay, Keewatin); Hand-list, i, 1899, 249.—Bendire, Proc. Boston Soc. Nat. Hist., xvii, 1875, 163 (Camp Harney, Oreg.; nest and young).—Boies, Cat. Birds Southern Michigan, 1875, No. 132 (s. Michigan; summer).—Gibbs, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 3, 1879, 490 (Michigan; irreg.).—Dalgleish, Bull. Nuttall Orn. Club, v, 1880, 141 (3 British records).—Drew, Bull. Nuttall Orn. Club, vi, 1881, 141 (San Juan County, Colo., breeding).—Merriam, Bull. Nuttall Orn. Club, vi, 1881, 233 (Lewis County, N. Y., breeding).—Wheaton, Rep. Birds Ohio, 1882, 422, 579 (Ohio; descr.; syn.; rare in winter).—Hartlaub, Journ. für Orn., xxxi, 1883, 264 (Chilcat and Chilcoot, Alaska).—Gurney, List Diurn. Birds Prey, 1884, 28; Cat. Birds Prey, 1894, 20.—McLenegan, Cruise *Corwin* in 1884, 1889, 118 (Kowak River, nw. Alaska.).—Reid, U. S. Nat. Mus. Bull. 25, 1884, 218 (Bermuda, 2 specs.).—Turner, Proc. U. S. Nat. Mus., viii, 1885, 244 (Fort Chimo, Ungava, res.).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1899, 45 (Yecaera, Sonora; Sierra de Nayarit, 8,000 feet, Tepic).—American Ornithologists' Union, Auk, xxv, 1908, 369.—Stone, Birds New Jersey, 1908, 162 (New Jersey; descr.; rare winter vis.); Auk, xliv, 1927, 102, in text (flight, Atlantic coast U. S.).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 458 (Illinois and Wisconsin).—Dawson and Bowles, Birds Washington, ii, 1909, 501 (Washington; habits; descr.).—Saunders, Auk, xxviii, 1911, 36 (Gallatin County, Mont., resident).—Sclater, Hist. Birds Colorado, 1912, 173 (Colorado; uncommon winter vis.).—Reichenow, Die Vögel, i, 1913, 375.—British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, 336 (3 British rec.).—Hennniger, Wils. Bull., xxx, 1918, 19 (near New Bremen, Shelley County, Ohio, Nov. 8, 1917).—Swann, Synopt. List Accip., pt. 1, 1919, 20.—Griscom, Birds New York City Region, 1923, 185 (status, New York City region).—Farley, Auk, xli, 1924, 178, in text (nesting; Petersham, Mass.).—Swarth, Condor, xxvi, 1924, 185 (San Francisco Mountains, Ariz.); Pacific Coast Avif., No. 22, 1934, 24 (Sitkalidak, Alaska; 1 record).—Taverner, Birds Western Canada, 1926, 189, pl. 25 B (fig., descr.; habits; w. Canada); Nat. Mus. Canada Bull. 50, 1928, 92 (near Belvedere, Alberta); Birds Canada, 1934, 120 (Canada; col. fig. (pl. 12) (descr.); Can. Water Birds, 1939, 130 (Canada; descr.); Condor, xlii, 1940, 157, in text (distr.).—Sutton, Auk, xliv, 1927, 563, in text (nesting, Clarion County, Pa.); Wils. Bull., xl, 1928, 84, in text (Schuylkill County, Pa., food; migr.).—Abbott, Condor, xxx, 1928, 192, in text (Mesa Grande, San Diego County, Calif.).—Jung, Auk, xlv, 1928, 384, in text (winter, se. Wisconsin).—Larson, Wils. Bull., xl, 1928, 47 (e. McKenzie County, N. Dak.).—Soper, Nat. Mus. Canada Bull. 53, 1928, 106 (southern Baffin Island).—Williams, Auk, xlv, 1928, 167 (Leon County, Fla.).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 76 (Chitina River, Alaska; breeds; spec.).—Munro, Condor, xxxi, 1929, 113 (food habits).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 185 (distr. Lassen Peak region, n. California).—Bagg, Auk, xlviii, 1931, 424, in text (nesting, Chester, Mass.).—Guthrie, Wils. Bull., xliv, 1932, 102, in text (eats snakes).—Clabaugh, Condor, xxxv, 1933, 80, in text (California; Shasta County; food).—Errington, Condor, xxxv, 1933, 24 (food habits; Wisconsin).—Compton, Condor, xxxvi, 1934, 221, in text (California: Rancho La Brea;

fossil bones).—deGroot, Condor, xxxvi, 1934, 8, in text (Eldorado County, Calif.; 2 seen).—Taverner and Sutton, Ann. Carnegie Mus., xxiii, 1934, 26 (Churchill, Manitoba; probably scarce transient or straggler; spec.).—Youngworth, Wils. Bull., xlvii, 1935, 216, in text (Fort Sisseton, S. Dak.).—Baillie and Harrington, Contr. Roy. Ont. Mus. Zool., No. 8, pt. 1, 1936, 19 (Ontario; rare breeder in central and northern part; distr.).—Lincoln, Bird-Banding, vii, 1936, 39 (banding recovery).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 148 (habits; distr.).—Shortt and Waller, Contr. Roy. Ont. Mus. Zool., No. 10, 1937, 15 (Lake St. Martin region, Manitoba; regular winter vis.; spec.).—Baumgartner, Auk, lv, 1938, 523, in text (Roscommon County, Mich.; nesting).—Wood, Auk, lv, 1938, 123, in text (Pennsylvania; food; meas.; 294 spec.).—Ricker and Clarke, Contr. Roy. Ont. Mus. Zool., No. 16, 1939, 7 (Ontario; Lake Nipissing; fall records).—Shortt, Contr. Roy. Ont. Mus. Zool., No. 17, 1939, 10 (Yakutat Bay, Alaska; food; spec.).—Allin, Trans. Roy, Can. Inst., xxiii, pt. 1, 1940, 94 (Darlington Township, Ontario; rarely seen in fall and winter).—Gabrielson and Jewett, Birds Oregon, 1940, 183 (Oregon; rare resident of Cascade and Blue Mountains; throughout State in fall and winter; descr.; habits).—Bond, Can. Field Nat., lv, 1941, 34 (Grand Manan, New Brunswick; breeds).—Engels, Auk, lviii, 1941, 63, 64, in text (wing skeletal ratios).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Miller, Condor, xliii, 1941, 113, in text (molt).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 42 (Prince Edward County, Ontario; fall and winter).—Jewett, Murrelet, xxiii, 1942, 69 (se. Alaska; Chilkat, seen).—Dixon, Condor, xlv, 1943, 207 (King Canyon National Park, Calif.).—Grater, Condor, xlv, 1943, 76, in text (sw. Utah; Cedar Breaks National Monument; 10,500 feet).—Marshall, Condor, xlvii, 1945, 171 (Boise National Forest, Idaho; winter).—Munro, Can. Journ. Res., xxiii, 1945, 53 (Cariboo Parklands, British Columbia; scarce summer vis.).

Astur (*Astur*) *atricapillus* Kaup, Mus. Senckenb., iii, 1845, 259.

Astur palumbarius atricapillus Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 237, part.—Nelson, Bull. Essex Inst., viii, 1876, 118, 119 (ne. Illinois, rare winter vis.).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; 1 rec.).—Goode, U. S. Nat. Mus. Bull. 20, 1883, 307.

Astur palumbarius var. *atricapillus* Ridgway, Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Illinois; winter).

Nisus (*Astur*) *palumbarius* b. var. *atricapillus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 57 (New England).

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Astur striatulus Gurney, Cat. Birds Prey, 1894, 20.—Sharpe, Hand-list, i, 1899, 248.

Astur gentilis striatulus Oberholser, Auk, xxxv, 1918, 186, in text, 206.—Swann, Synop. Accip., pt. 1, 1921, 33; Monogr. Birds Prey, i, 1925, 189 (monogr.).—Dawson, Birds California, (stud. ed.), iii, 1923, 1668 (genl.; California).—

Austin, Mem. Nuttall Orn. Club, No. 7, 1932, 61, in text (distr.).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 8 (Nebraska; rare winter vis.; 6 records).—Arvey, Univ. Kansas Mus. Nat. Hist. Publ., i, No. 10, 1947, 198 (Idaho).

Accipiter gentilis striatulus Peters, Check-list Birds of World, i, 1931, 208.—van Rossem, Proc. Biol. Soc. Washington, li, 1938, 99, in text (Pacific Northwest; crit.).

Accipiter striatulus Stresemann, Journ. für Orn., lxxii, 1924, 437 (tax.; distr.).

Astur atricapillus henshawi Nelson, Auk, i, 1884, 166 (type loc. not designated; "Pacific coast region, from southern Arizona to Sitka, Alaska").—Palmer, Condor, xxx, 1928, 282, in text (patronymics).

Accitiper atricapillus striatus Nice, Bird-Banding, ix, 1938, 106, in text (California; nesting habits).

Accipiter gentilis Moore, Condor, xl, 1938, 24, in text (Sinaloa; 2 spec.).—Fisher, Auk, lxii, 1945, 126, 127, 128 (flight and musculature).—Ingles, Condor, xlvii, 1945, 215, in text (Sequoia National Park, Calif.).—Sutton, Condor, xlvii, 1945, 264 (Fairbanks, Alaska, winter).—Spofford, Auk, lxiii, 1946, 87, in text (feather patterns of remiges).

Accipiter gentilis gentilis van Tyne, Auk, lx, 1943, 267, in text (plumage; Red Bay, Labrador).

Accipiter gentilis apache van Rossem, Proc. Biol. Soc. Washington, li, 1938, 99 (Paradise, Cochise County., Ariz., July 10, 1918; chars. ad. and yg.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 53 (Sonora; 1 spec.).

ACCIPITER GENTILIS LAINGI (Taverner)

Queen Charlotte Goshawk

Adult.—Like that of *Accipiter gentilis atricapillus* but faintly to distinctly darker, the breast averaging sootier gray, usually with numerous broad shaft streaks; the blackish of the crown and occiput extending posteriorly over the nape and interscapulars.

Juvenal.—Like that of *A. g. atricapillus* but darker, the ventral streaks very broad and heavy on a light background that averages somewhat darker than in *atricapillus;* above practically solid rich dark brown with little or no light feather edging or semiconcealed markings.

Natal down.—Not described.

Adult male.—Wing 312; tail 233; culmen from base 30; tarsus 74; middle toe without claw 43 mm. (1 specimen).[95]

Adult female.—Wing 325–340 (332.3); tail 243–259 (249.7); culmen from base 33–35 (34); tarsus 77–80 (78.3); middle toe without claw 46–52 (48 mm.) (3 specimens).

Range.—The islands off the coast of British Columbia, from the Queen Charlottes to Vancouver. On the latter island the birds begin to show intergradation toward *atricapillus.*

Type locality.—Massett, Queen Charlotte Islands, British Columbia.

[95] Four juvenal males have the following dimensions: Wing 292–324 (303); tail 223–255 (235); culmen from base 30–32 (31); tarsus 71–75 (72.7); middle toe without claw 40–44 (42.7 mm.).

Two juvenal females have wings 312, 319; tail 228, 237, tarsus 71.5, 73 mm.

Astur atricapillus Poole, Queen Charlotte Islands, 1872, 308 (Burnaby Island).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 97, part.

Astur atricapillus subsp.? Patch, Can. Field Nat., xxxvi, 1922, 133 (Massett Queen Charlotte Islands; spec.; plum.).

Astur atricapillus striatulus Swarth, Univ. California Publ. Zool., x, 1912, 28 (Vancouver Island).

Accipiter atricapillus striatulus Fannin, Check list British Columbia Birds, 1898, 34 (Vancouver Island).—Kermode, Cat. British Columbia Birds, 1904, 29 (Skidegate, Queen Charlotte Islands).—Osgood, North Amer. Fauna, No. 21, 1901, 42 (Massett, Queen Charlotte Islands).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 139, part.

Accipiter atricapillus Fannin, Check list British Columbia Birds, 1898, 34 (Vancouver Island).—Kermode, Cat. British Columbia Birds, 1904, 29 (Vancouver Island; few spec.).

Astur atricapillus laingi Taverner, Condor, xlii, 1940, 160 (Masset [= Massett], Queen Charlotte Islands, Brit. Columbia; descr.; plum.; crit.).—Anonymous, Auk, lvii, 1940, 594, in text (Queen Charlotte Islands).

Astur gentilis striatulus Swann, Synop. Accip., 1921, 33, part (islands off northwest Pacific coast); Monogr. Birds Prey, i, 1925, 189, part.

Accipiter gentilis striatulus Peters, Check-list Birds of World, i, 1931, 208. part (islands off northwest Pacific cost).

ACCIPITER BICOLOR BICOLOR (Vieillot)

Bicolored Hawk

Adult male.—Top of head sooty black, remainder of upperparts slate color to dark neutral gray, slightly darker on the scapulars and innermost secondaries, shading to slate gray on the neck and sides of face. Wings above fuscous-black on the outer webs, fuscous on the distal parts of the inner webs, white on the basal parts of the inner webs, indistinctly barred with fuscous-black; below, pale neutral gray shading to white toward the bases of the quills and barred with fuscous. Under wing coverts white, russet, or cinnamon-brown along the carpal band; under tail coverts white, with some grayish, and sometimes some russet or chestnut feathers; tibiae between russet and chestnut; remainder of underparts light neutral gray to dark gull gray. Tail fuscous-black to sooty black above, fuscous below, crossed by three or four narrower bands, which are fuscous above shading to white toward the bases of the inner webs, and pale neutral gray to white below. Bill black, slate at base of mandible; bare skin around eye chrome yellow; cere, lores, and remaining bare skin on sides of face greenish sulphur yellow; iris orange: feet yellowish olive-yellow (Cherrie).

Adult female.—Similar to the male, but larger.

Immature male.—White-breasted variety: Top of head fuscous-black to sooty black, the feathers of the occiput with concealed white bases; a distinct white or buffy nuchal collar, continuous with the white of the underparts; cheeks and auriculars white or cream-buff, streaked with black; remainder of upperparts fuscous, each feather

distally margined with tawny or russet and those of the lower neck, rump, and upper tail coverts barred basally with white. Entire underparts white or cartridge buff, shading to cinnamon-buff on the tibiae. Wings hair brown to fuscous above, pale neutral gray below, white basally toward the inner webs, barred with fuscous-black. Tail fuscous to fuscous-black, basally white, tipped with white, and crossed by three or four narrow bands of white more or less shaded, mottled, or marked, with hair brown, particularly on the innermost rectrices which are often uniform hair brown. TAWNY-BREASTED VARIETY: Similar to the above, but the entire underparts light ochraceous tawny.

Immature female.—Similar to the immature male (both varieties), but somewhat larger; iris straw yellow; cere olive-yellow; bare skin around eye chrome yellow; feet and bill as in adult male (Cherrie).

Natal down.—Apparently unknown.

Adult male.—Wing 200–215 (204.8); tail 172.5–180 (175.6); culmen from cere 14.5–15.8 (15.2); tarsus 56.5–63 (60.2); middle toe without claw 34.5–40 (37.5 mm).[96]

Adult female.—Wing 238–243 (240.5); tail 203.5–204.5 (204); culmen from cere 18–19.5 (18.7); tarsus 68–69 (68.5); middle toe without claw 42.5–46 (44.3 mm).[97]

Range.—Quintana Roo, Yucatán, south through Honduras, Guatemala, Nicaragua, Costa Rica, and Panama to Venezuela, British, Dutch, and French Guiana, the Amazonia district of Brazil (Santarém), Colombia, and Ecuador to eastern and northwestern Peru (Santa Cruz, Yurimaguas, Cuteroo, Bellavista, Perico). In the mountainous areas of Colombia, Ecuador, and Peru, it is restricted to the tropical and subtropical zones.

Type locality.—Cayenne.

Sparvius bicolor VIEILLOT, Nouv. Dict. Hist. Nat., x, 1817, 325 (Cayenne); Encycl. Méth., iii, 1823, 1265.—PUCHERAN, Rev. Mag. Zool., ii, 1850, 92 (crit. on type).—HARTLAUB, Journ. fur Orn., 1855, 419 (crit. on type).

Cooperastur bicolor BONAPARTE, Rev. Mag. Zool., vi, 1854, 538.—GURNEY, Cat. Birds Prey, 1894, 22.—BERLEPSCH and HARTERT, Nov. Zool., ix, 1902, 112 (Altagracia, Quiribana de Caicara, and Caicara, Venezuela; fresh colors of unfeathered parts).—BERLEPSCH, Nov. Zool., xv, 1908, 291 (Cayenne).

Accipiter bicolor STRICKLAND, Orn. Syn., i, 1855, 110.—GRAY, Hand-list, i, 1869, 33, No. 318.—SCLATER and SALVIN, Exotic Orn., pt. 9, 1867, 137, pl. 69; Proc. Zool. Soc. London, 1869, 252 (Maruria, Venezuela); 1870, 782 (Merida, Venezuela), 838 (coast Honduras); 1873, 303 (Santa Cruz, e. Peru); Nom. Av. Neotr., 1873, 120, part (Central America to Amazonia); Proc. Zool. Soc. London, 1879, 540 (Remédios, Antioquia, Colombia).—SALVIN, Proc. Zool. Soc. London, 1870, 215 (Chitra, Boquata de Chitra, Calovébora, and Volcán de Chiriquí, Panama); Ibis, 1886, 75 (Bartica Grove and Roraima, 3,000 feet,

[96] Five specimens from Costa Rica, Panama, and Peru (Perico).

[97] Two specimens, Costa Rica and Peru (Perico).

Brit. Guiana).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 154 (Brit. Guiana; Cayenne; Colombia; Veraguas, Panama), 457 (Panama); Handlist, i, 1899, 254.—Taczanowski, Proc. Zool. Soc. London, 1877, 329, 333 (Tumbez, Peru, and Palmal, Ecuador); 1880, 211 (Cutervo, Peru, 9,700 feet; crit.); Orn. Pérou, i, 1884, 165.—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (San José, Costa Rica).—Berlepsch, Journ. für Orn., 1889, 317 (Yurinaguas, ne. Peru).—Riker, Auk, viii, 1891, 161 (Santarém, lower Amazon).—Cherrie, Auk, ix, 1892, 328 (San José, Costa Rica).—Lantz, Trans. Kansas Acad. Sci. for 1896–97 (1899), 219 (Naranjo, Guatemala).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1899, 47, part (Mérida, Tizimin, Yok-Satz, and Peto, Yucatán; Savana Grande, Dueñas, and Cubilguitz, Guatemala; Tegucigalpa and San Pedro, Honduras; San Emilio, Río Coco, Ojoche, and Matagalpa, Nicaragua; Miravalles, Turrialba, San José and Dota, Costa Rica; Volcán de Chiriquí; Boquete de Chitra, Calovébora, and Panama Railway, Panama; Colombia to Guiana).—Allen, Bull. Amer. Mus. Nat. Hist, xiii, 1900, 130 (Bonda and Onaca, Santa Marta, Colombia).—Salvadori and Festa, Boll. Mus. Zool., Torino, xv, 1900, 29 (Pun, e. Ecuador; crit.).—Goodfellow, Ibis, 1902, 222 (Ecuador).—Bangs, Bull. Mus. Comp. Zool., xxxix, 1903, 141 (Yaruca, Honduras).—Penard, Vög. van Guyana, i, 1908, 386 (Surinam).—Chubb, Birds Brit. Guiana, i, 1916, 282 (habits).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 242 (Popayan, Purificación, and Florencia, Colombia; crit.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Panama Canal Zone; listed).—Swann, Synopt. List Accip., pt. 1, 1919, 37, part; Auk, xxxviii, 1921, 359 (Culata, Venezuela, 2,500 m.).—Stresemann, Journ. für Orn., lxxii, 1924, 437 (tax.; distr.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 131 (descr., habits; Panama Canal Zone).

Accipiter "bicolor" Allen, Bull. Essex Inst., viii, 1876, 82 (Santarém, lower Amazon).

Accipiter (Cooperastur) bicolor Gurney, List Diurn. Birds Prey, 1884, 44.

Accipiter bicolor bicolor Hellmayr, Bull. Brit. Orn. Club, xvi, 1906, 82, in text; Nov. Zool., xiii, 1906, 382 (Para, Brazil; crit.); Abh. math.-phys. Kl. Bayr. Akad. Wiss., xxvi, 1912, 96.—Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 341 (Orinoco region, Venezuela; color of unfeathered parts).—Bangs and Noble, Aux, xxxv, 1918, 443 (crit.).—Swann, Synop. Accip., pt. 1, 1921, 62 (Central America to Colombia, Venezuela, and Guiana); Monogr. Birds Prey, i, 1926, 332 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 145 (Bonda and La Tigrera, Santa Marta; Colombia; crit.).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 225 (Ecuador; distr.).—Griscom, Bull. Mus. Comp. Zool., lxix, 1929, 157 (Cana, Darién, Panama); lxxviii, 1935, 298 (Panama; throughout but uncommon).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 366 (Río Frío, Magdalena, Colombia).—Peters, Check-list Birds of World, i, 1931, 217; Bull. Mus. Comp. Zool., lxxi, 1931, 311 (Fruitdale, Panama; crit.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 151 (Guatemala; distr.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras; Yaruca; San Pedro; Tegucigalpa).—van Tyne, Univ. Michigan Mus. Zool., Misc. Publ. 27, 1935, 16 (Uaxactun, Petén, Guatemala; spec.; colors of soft parts).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 42 (Paracote, Azuero Peninsula, Panama; spec.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 66 (Brazil; distr.).—Dugand, Rev. Acad. Colomb., iii, 1940, 218 (wooded areas of Madalena–Caribbean part of Colombia).—Griscom and Greenway,

Bull. Mus. Comp. Zool., lxxxviii, 1941, 112 (Lower Amazonia; Santarém; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Chichen Itzá, Yucatán; spec.).—Gyldenstolpe, Kungl. Svenska Vet. Akad. Handl., xxii, No. 3, 1945, 26 (Río Juruá, w. Brazil; spec. crit.).

Nisus pileatus b. var. *bicolor* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 59 (Cayenne).

Nisus bicolor Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ii, No. 2, 1876, 107, part (Panama Railway and Chiriquí, Panama; Turrialba, Sipurio, and San José, Costa Rica; Guiana; Cayenne; monogr.).—Ihering and Ihering, Aves Brazil, 1907, 88, part (Amazonia).

Nisus pileatus Tschudi, Unters. Fauna Peru, Orn., 1846, 100, part (wooded areas of Peru).—Schlegel, Mus. Pays-Bas, Astures, 1862, 35, part (Caracas, Venezuela).

Accipiter pileatus (not *Falco pileatus* Temminck) Sclater, Proc. Zool. Soc. London, 1860, 72, 298 (Ecuador).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 289 (Panama; crit.); ix, 1868, 134 (San José, Dota, and Turrialba, Costa Rica).—Salvin, Ibis, 1861, 355, part (Vera Paz, Guatemala).—Franzius, Journ. für Orn., 1869, 309 (Costa Rica).—Gray, Hand-list, i, 1869, 33, No. 315, part.—Taczanowski, Proc. Zool. Soc. London, 1882, 47 (Huambo, Peru); Orn. Perou, i, 1884, 166 (Peru).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 42 (La Merced, Peru).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922 (near Gualen, Ecuador).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 225 (Ecuador).

Nisus variatus Lesson, Traité d'Orn., 1830, 61 (Cayenne).—Pucheran, Rev. Mag. Zool., ii, 1850, 6, 210 (crit. on type).

Accipiter sexfasciatus Swainson, Anim. in Menag., 1838, 282 (Guiana).—Cabanis, Journ. für Orn., 1869, 208, part (Costa Rica).

Nisus sexfasciatus Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 736.

Astur sexfasciatus Lichtenstein, Nom. Av. Mus. Berolinensis, 1854, 4.

Micrastur dynastes Verreaux, *in* Bonaparte's Notes Orn., 1854, 4.

Rhynchomegus dynastes Bonaparte, Notes Orn., 1854, 4; Rev. Mag. Zool., vi, 1854, 537.

Accipiter erythrocnemis (not *A. erythronemia* Gray) Sclater, Proc. Zool. Soc. London, 1860, 96.

Accipiter bicolor schistochlamys Hellmayr, Bull. Brit. Orn. Club, xvi, 1906, 82 (spec. from Cachabi, nw. Ecuador, Chiriquí and Panama); Nov. Zool., xiii, 1906, 382, part (Chiriquí; Panama).—Bangs, Auk, xxiv, 1907, 290 (Boruca and Pozo del Río Grande, Costa Rica).—Carriker, Ann. Carnegie Mus., vi, 1910, 455 (Santa María de Dota, Pozo Azul de Pirris, El Hogar, Boruca, and Buenos Aires, Costa Rica; habits).—Peters, Auk, xxx, 1913, 370 (Xcopen, Quintana Roo, Mexico); Check-List Birds of the World, i, 1931, 217 (w. Ecuador).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 36 (Alonguinche, s. of Mojando, Ecuador, 9,000 feet; near Gualea, 5,000 feet; crit.).—Swann, Monogr. Birds of Prey, i, 1926, 333 (monogr.).

ACCIPITER BICOLOR FIDENS Bangs and Noble

Mexican Bicolored Hawk

Adult male.—Larger and darker than that of *A. b. bicolor*. Upperparts blackish slate to slate color. Underparts dark gull gray to slate-gray.

Adult female.—Similar to the male, but larger.

Immature.—Similar to that of *A. bicolor bicolor.*

Natal down.—Undescribed.

Adult male.—Wing 251; tail 217.5; culmen from cere 18.5; tarsus 67.3; middle toe without claw 41.5 mm. (1 specimen).

Adult female.—The measurements of the type as given by Bangs and Noble (Auk, xxxv, 1918, 444) are: Wing 260; tail 209; culmen from cere 20.5; tarsus 67 mm. An immature female: Wing 255; tail 212; culmen from cere 18; tarsus 68 mm.

Range.—Southern Mexico in the states of Veracruz (Buena Vista, Playa Vicente, Jalapa, Portrero) and Oaxaca (Tehuantepec).

Type locality.—Buena Vista, Veracruz, Mexico.

Accipiter pileatus (not *Falco pileatus* Temminck) Sclater, Proc. Zool. Soc. London, 1859, 389 (Playa Vicente, Veracruz, Mexico).—Salvin, Ibis, 1861, 355, part (e. Mexico).

Accipiter bicolor (not *Sparvius bicolor* Vieillot) Sclater and Salvin, Nom. Av. Neotr., 1873, 120, part (Mexico).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, No. 7–8, 1894, 227 (Veracruz and Tehuantepec, Mexico).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1899, 47, part (Potrero, Jalapa, and Playa Vicente, Veracruz; Tehuantepec, Oaxaca).—Swann, Synopt. List Accip., pt. 1, 1919, 37, part (s. Mexico).

Nisus bicolor Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 107, part (s. Mexico).

Lepthierax bicolor Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 254 (Jalapa, Veracruz).

Accipiter bicolor fidens Bangs and Noble, Auk, xxxv, 1918, 444 (Buena Vista, Veracruz, Mexico; coll. Mus. Comp. Zool.).—Swann, Synop. Accip., pt. 1, 1921, 62; Monogr. Birds Prey, i, 1926, 334 (monogr).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 188 (type in Mus. Comp. Zool.).—Peters, Check-list Birds of World, i, 1931, 217.

Accipiter sexfasciatus (not of Swainson) Cabanis, Journ. für Orn., xvii, 1869, 208, part (Veracruz, Mexico).

ACCIPITER COOPERII (Bonaparte)

Cooper's Hawk

Adult male.—Forehead blackish plumbeous, each feather edged with cinnamon-buff, pinkish buff, light ochraceous-buff, or vinaceous-buff, sometimes narrowly, so that the whole area is predominantly blackish, but often widely, giving the forehead a distinctly buffy appearance; crown and occiput sooty black to plumbeous-black, becoming more fuscous-black in worn plumage, with snow white bases to the feathers of the latter area; remainder of upperparts dark plumbeous to deep mouse gray, becoming somewhat fuscous in worn plumage, the nape abruptly lighter than the occiput, and often tinged with sayal brown; feathers of the nape, back, scapulars, and rump with darker shafts; scapulars with concealed cordate and circular spots of white; upper tail coverts sharply tipped with white and often with a more-or-less developed single white band, tail more brownish

than the rump, becoming whitish toward the bases of the inner webs of the outer rectrices, pale neutral gray below, sharply tipped with white, and crossed by three (sometimes a fourth is concealed by the upper tail coverts) broad, sharply defined bands of sooty black to fuscous-black, the last, which adjoins the white tips, the broadest; lores grayish; ear coverts and sides of neck varying from white through pale neutral gray, vinaceous-buff with a grayish wash, to wood brown, sayal brown, cinnamon-brown, or russet, finely streaked with black; throat white, occasionally pinkish buff or cinnamon-buff, with fine,

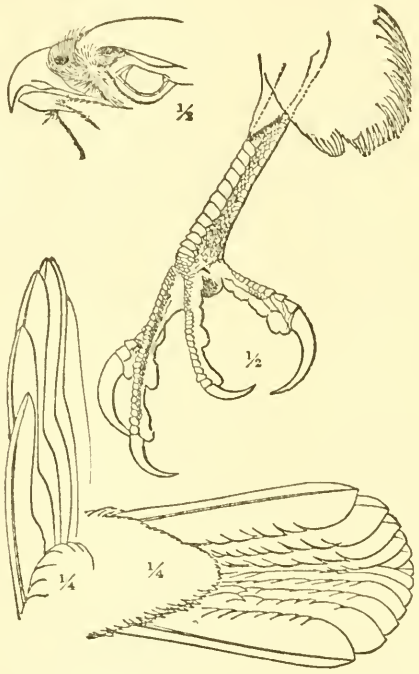

FIGURE 14.—*Accipiter cooperii.*

hairlike shaft streaks of blackish; remainder of underparts white with fine black shaft streaks broken by detached transverse bars of avellaneous, cinnamon, sayal brown, or tawny-olive, which are extremely variable in form and width, sometimes presenting the appearance of arrowhead marks, at others spreading longitudinally along the shafts so that the white ground color is reduced to spots and occasionally completely obliterated on the flanks and chest; sides of chest usually shaded with gray; tibiae regularly banded with orange-cinnamon, sayal brown, tawny or russet, sometimes uniform tawny or russet; abdomen less heavily marked, sometimes uniform white;

under tail coverts pure white; under wing coverts and axillaries white, barred or spotted with tawny or russet; primaries and secondaries fuscous above, darker on the outer webs, white toward the bases of the inner webs, silvery white to pale neutral gray below, tipped and barred with darker fuscous or fuscous-black; terminal half of bill deep black, basal half pale blue; cere greenish yellow; iris deep orange-red; tarsi and toes deep lemon yellow.

Adult female.—Similar to the male, but the upperparts lacking entirely any bluish cast, and usually less heavily marked below. Crown and occiput fuscous to fuscous-black; remainder of upper parts hair brown to fuscous (fuscous-black in one specimen).

Immature.—Forehead and crown fuscous-black to sooty black, each feather widely margined with ochraceous-tawny, changing to ochraceous-buff in worn plumage; occiput white basally, each feather with a broad fuscous-black streak on its distal half and some faint indications of ochraceous-tawny on the margin where the black and white meet; back of neck more broadly margined with ochraceous tawny; remainder of upperparts grayish fuscous to hair brown, the feathers distally margined with ochraceous-tawny and with large white spots near their bases; upper surface of tail paler and grayer than the back, becoming whitish toward the bases of the inner webs of the outer rectrices, narrowly tipped with white, and crossed by four bands of fuscous-black; under surface of tail silvery white or pale neutral gray, banded with fuscous; cheeks, sides of face and neck cinnamon-buff streaked with fuscous, underparts white, sometimes tinged with creamy or pinkish buff on the upper breast; throat with a medial and lateral series of fuscous to fuscous-black streaks of variable width, occasionally almost absent; breast and flanks streaked with fuscous, the width and shape of each streak varying from fine lines to broad bands, or from club-shaped to broad arrowhead markings; abdomen uniform or sparsely streaked, occasionally nearly as heavily streaked as the breast; under tail coverts uniform white, occasionally narrowly streaked; tibiae uniform white, narrowly streaked with fuscous or broadly marked or spotted with fuscous, hair brown, or cinnamon-brown, the spots sometimes chordate, sometimes broadening out to form incomplete bars. Wings fuscous to hair brown above, becoming white toward the bases of the inner webs, pale neutral gray to silvery white below, widely banded with fuscous to fuscous-black.

Juvenal.—Similar to the immature, but breast and throat more washed with cinnamon-buff to cinnamon; edges of feathers of upperparts edged with russet.

Natal down.—Pure white or yellowish white.

Adult male.—Wing 214–238 (231); tail 181–211 (198.8); culmen from cere 15–17.5 (16.2); tarsus 61.5–73 (64.1); middle toe without claw 35–48 (40.5 mm.).[98]

Adult female.—Wing 247–278 (259.9); tail 215–242 (220.9); culmen from cere 17.5–21 (19); tarsus 66–75 (71.1); middle toe without claw 42–49.5 (46.1 mm.).[99]

Range.—Breeds in temperate North America from southern British Columbia, central Alberta, and southern Manitoba east across southern Canada to northern New Brunswick, Nova Scotia, and Prince Edward Island, and south throughout the United States to central Florida (Orlando and Manatee), Mississippi, Alabama, Louisiana, Texas, and Chihuahua, Sonora, and Baja California.

Winters from southwestern British Columbia, Washington, Colorado, Nebraska, southern Minnesota, southern Illinois, Indiana, Ohio, southern Michigan and Ontario, New York, Massachusetts, and southern Maine, southward throughout the United States and Mexico (Sonora, Chihuahua, Sinaloa, Jalisco, Guerrero, Veracruz, and Chiapas) to Guatemala (Cobán and Dueñas) and to Costa Rica (El Mojon).

Occasional in summer to Alaska (Sitka), Athabaska (La Biche River), Keewatin (Hayes River), and Labrador (Natashquam).

Type locality.—Near Bordentown, N. J.

Falco hyemalis β GMELIN, Syst. Nat., i, pt. 1, 1788, 274 ("provincia Noveboracensi"; based on *Northern Falcon* Latham, Gen. Synopsis Birds, i, 1781, 79).

Falco cooperii BONAPARTE, Amer. Orn., ii, 1828, 1, pl. 10, fig. 1 (near Bordentown, N. J.); Ann. Lyc. Nat. Hist. New York, ii, 1828, 433.—NUTTALL, Man. Orn. United States and Canada, Land Birds, 1832, 90.—AUDUBON, Orn. Biogr., v, 1839, 376.—JARDINE, ed. Wilson's Amer. Orn., iii, 1840, 363.—VAN ROSSEM, Auk, liv, 1937, 203, in text (type spec. in Paris, meas.).

Astur cooperi BONAPARTE, Geogr. and Comp. List., 1838, 5; Consp. Gen. Av., i, 1850, 31.—AUDUBON, Synopsis, 1839, 18; Birds Amer., 8vo ed., i, 1840, 98, pl. 24.—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. 4, chapt. 2, 1857, 74 (San Francisco and Benicia, Calif. to Columbia River).—MAXIMILIAN, Journ. für Orn., 1858, 13.

Astur cooperi NUTTALL, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 89.—JARDINE, ed. Wilson's Amer. Orn., iii, 1840, 363.—GIRAUD, Birds Long Island, 1844, 20 (Long Island, N. Y., not in winter, not known to breed).

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[99] Twenty-seven specimens from all parts of its range.

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Accipiter cooperii Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 279 (San Francisco, Calif.; Yakima River, Wash.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 16.—Brewer, North Amer. Ool., i, 1857, 20, pl. 5, fig. 55.—Baird, Cat. North Amer. Birds, 1859, No. 15.—Verrill, Proc. Essex Inst., iii, 1862, 140 (Oxford County, Maine, summer vis.).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity of New York City).—Cooper, Orn. California, Land Birds, 1870, 464.—Coues, Key North Amer. Birds, 1872, 212.—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; quite rare).—Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (Utah).—Boies, Cat. Birds Southern Michigan, 1875, No. 131 (s. Michigan; res.).—Cubas, Cuadro Geograph., Estadístico, Descr. e Hist. de los Estado Unidos Mexicanos, 1884, 173 (common names Mexico).—Fleming, Auk, xviii, 1901, 37 (Beaumaris, n. Ontario).—Allen, Proc. Manchester Inst. Sci. and Arts, iv, 1902, 97 (New Hampshire summer resident).—Bailey, Handbook Birds Western United States, 1902, 152.—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 82 (San José del Cabo, Lower California; Sierra de la Laguna: crit.); Mem. Nuttall Orn. Club, No. 4, 1906, 184 (Cambridge region, Mass.; common summer; occ. winter; eggs).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 31 (Oregon range).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 62 (Wisconsin; habits).—Williams, Auk, xxi, 1904, 454 (Leon County, Fla., breeding).—Stockard, Auk, xxii, 1905, 151 (Mississippi; breeding habits).—Roberts, *in* Wilcox's Hist. Becker County, Minn., 1907, 171 (common).—Widmann, Birds Missouri, 1907, 92 (summer res.).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 457 (Illinois and Wisconsin).—Dawson and Bowles, Birds Washington, ii, 1909, 499 (Washington; habits, distr.).—(?) Henderson, Univ. Colorado Stud. Zool., vi, 1909, 229 (Boulder County, Colo.; res.).—Kermode, Prov. Mus. Victoria, 1909, 43 (Vancouver Island, Sicamous, Chilliwack, and Okanagan, Brit. Columbia).—Wayne, Birds South Carolina, 1910, 73 (breeding habits).—Grinnell, Proc. California Acad. Sci., ser. 4, xiii, No. 5, 1923, 63 (Furnace Creek Ranch, Death Valley, Calif.; food); Univ. California Publ. Zool., xxxii, 1928, 107 (distr., Lower California).—Howell, Birds Alabama, 1924, 132; ed. 2, 1928, 132; (distr.; habits; Alabama).—Bailey, Birds Florida, 1925, 69, pl. 38 (Florida; fig.; distr.).—Simmons, Birds Austin Region, 1925, 99 (Austin, Tex., region; habits; distr.).—Abbott, Condor, xxx, 1928, 162 (Poway, San Diego County, Calif.).—Pemberton, Condor, xxx, 1928, 147 (Santa Rosa Island).—Meadows, Condor,

xxxi, 1929, 130 (Santa Catalina Island).—Miller, Taylor, and Swarth, Condor, xxxi, 1929, 77, in text (Tucson, Ariz., winter).—Munro, Condor, xxxi, 1929, 113 (food habits).—Sumner, Condor, xxxi, 1929, 85, in text (growth of young); xlii, 1940, 39, in text (Pomona, Calif., 5 banded).—Swarth, Proc. California Acad. Sci., ser. 4, xviii, 1929, 292 (near Patagonia, Ariz.; plumage).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 187 (distr., Lassen Peak region, n. California).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea).—Oberholser, Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 64 (spec., Huachuca Mountains, Ariz.); Bird Life Louisiana, 1938, 160 (Louisiana, rare resident; distr.; habits; food; nest; breeds).—[Arthur], Birds Louisiana, 1931, 193 (descr.; status in Louisiana).—Gabrielson, Condor, xxxiii, 1931, 112 (Rogue River Valley, Oreg.).—Peters, Check-list Birds of World, i, 1931, 217 (distr.).—Miller, Condor, xxxiv, 1932, 96 (nest; Sitgreaves Mountain, Ariz.).—Errington, Condor, xxxv, 1933, 22–24 (food habits in Wisconsin).—Howard and Miller, Condor, xxxv, 1933, 16 (bones; Organ Mountains, N. Mex.).—Phillips, Condor, xxxv, 1933, 228, text (Pima County, Ariz., fairly com. res.).—Willett, Pacific Coast Avif., No. 21, 1933, 41 (sw. California; fairly common res.; breeds; syn.).—Sefton, Condor, xxxvi, 1934, 83, in text (California; Point Loma record; food habits).—Benson, Univ. California Publ. Zool., xl, 1935, 443 (Navajo Mountains, Utah).—Gilman, Condor, xxxvii, 1935, 240, in text (Death Valley, Calif.; common).—Miller, Condor, xxxvii, 1935, 75, in text (McKittrick, Calif.; Pleistocene; bones); xxxix, 1937, 220, in text (skel.).—Bond, Condor, xxxviii, 1936, 178, in text (live weights of 2 birds); Check List Birds West Indies, ed. 2, 1945, 22 (mentioned); Condor, xlviii, 1946, 107, in text (competition with duck hawks).—Ewan, Condor, xxxviii, 1936, 83, in text (Plumas County, Calif.; record).—Grinnell and Linsdale, Vert. Anim. Point Lobos Reserve, 1936, 39, 53 (Point Lobos, Calif.; 6 single hawks noted (Oct.–Nov.)).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 42 (Nevada; numerous summer records; breeds; weight); Amer. Midl. Nat., xix, 1938, 38 (Toyabe Mountain, Nev.; habits; nest; spec.).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif., 6 records).—Borell, Condor, xxxix, 1937, 44, in text (Grand Canyon National Park, Ariz.; spec.; food habits).—Carter, Condor, xxxix, 1937, 212, in text (San Bernardino County, Calif.; a few records).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 18 (Brewster County, Tex.; sev. records; breeds; nests and eggs; eye color).—Compton, Univ. California Publ. Zool., xlii, 1938, 175, 179, in text, 185, 192, 198, 201, 205 (pterylosis).—Cushing, Condor, xli, 1939, 102, in text (habits).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 25 (ne. Mexico: Tamaulipas; several records; 2 specs.; Monterrey and Güemes); Auk, lvii, 1940, 237, in text (Las Vegas, Veracruz; 1 seen).—Wetmore, Proc. U. S. Nat. Mus., lxxxvi, 1939, 181 (Tennessee; common; many records).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 96 (w. Texas: Guadalupe Mountains; 1 spec.).—Davis, Condor, xlii, 1940, 81, in text (Brazos County, Tex.; resident).—Trautman, Misc. Publ. Univ. Michigan Mus. Zool., No. 44, 1940, 209 (Buckeye Lake, Ohio; rather common spring and fall transient and winter res.; uncommon summer res.; nest. records; habits; food).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Allen, Condor, xlv, 1943, 151 (Berkeley, Calif.).—Dixon, Condor, xlv, 1943, 207 (Kings Canyon National Park).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomenclature).—Behle, Condor, xlvi, 1944, 71 (Utah; fairly

common summer res.).—Burdick, Condor, xlvi, 1944, 238 (n. Cascade Mountains, Wash.).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 358 (Gulf coast of Mississippi; uncommon winter res.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 98 (permanent res.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; resident).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 9 (Nebraska; common permanent res.).—Loomis, Auk, lxii, 1945, 237 (Newfoundland and Labrador).—Packard, Auk, lxii, 1945, 374 (Rocky Mountain National Park, Colo.).—Peyton, Condor, xlvii, 1945, 167, in text (California).—Wilson, Condor, xlvii, 1945, 150 (Kettleman Hills area, Calif.).—Woodbury and Russell, Bull. Univ. Utah, vol. 35, 1945, 36 ("Navaho Country," se. Utah and ne. Arizona; common breeder).—Yocom, Murrelet, xxvi, 1945, 20 (Colville Valley, Wash.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Bond, Condor, xlviii, 1946, 107, in text (competition with duck hawks).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mount Katahdin region, Maine).—Hudson, Murrelet, xxviii, 1947, 2 (Tucannon River, Blue Mountains, Wash.).—McMillan, Condor, xlix, 1947, 170 (San Luis Obispo County, Calif.; attacking quail).

Accipiter (*Cooperastur*) *cooperi* Gurney, List Diurn. Birds Prey, 1884, 44.

Accipiter cooperi a. *cooperi* Coues, Birds Northwest, 1874, 334.

Accipiter cooperi cooperi Swann, Synopt. List Accip., pt. 1, 1919, 32; Synop. Accip., pt. 1, 1921, 53.—Dawson, Birds California (stud. ed.), iii, 1923, 1663 (genl.; California).

Accipiter cooperii cooperii Swann, Monogr. Birds Prey, i, 1926, 291 (monogr.).—Huey, Trans. San Diego Soc. Nat. Hist., ix, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; reg. migr.; many nest; fewer winter).

Nisus (*Nisus*) *cooperi* Kaup, Mus. Senckenb., iii, Heft iii, 1845, 249.

Nisus cooperi Ridgway, Bull. Essex Inst., v, 1873, 177, 186 (Colorado); Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 23 (lower Wabash Valley); Bull. Essex Inst., vii, 1875, 10 (w. Nevada, summer), 13 (Carson, Nev., winter), 19 (West Humboldt Mountains, Nev., Sept.), 21 (Ruby Mountains, Nev., summer), 34 (Parleys Peak, Utah, summer), 38 (Nevada, breeding); Proc. Acad. Nat. Sci. Philadelphia, 1875, 78 (monogr.); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 97 (monogr.); Orn. 40th Parallel, 1877, 581 (West Humboldt Mountains, Nev., Oct.).—Schlegel, Mus. Pays-Bas, ii, No. 36, livr. 10, 1873, 73 (crit.).—Nelson, Bull. Essex Inst., viii, 1876, 118 (ne. Illinois; common summer); ix, 1877, 46 (Mount Carmel, s. Illinois, rare), 48 (Fox Prairie, Richland County, Ill.), 65 (s. Illinois).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; rather common, summer).

Nisus cooperi a. var. *cooperi* Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 59 (Massachusetts; Wisconsin).

Nisus cooperi Var. *cooperi* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 230.

Nisus cooperi cooperi Goode, U. S. Nat. Mus. Bull. 20, 1883, 331.

Accipiter mexicanus Swainson, Fauna Bor.-Amer., ii, 1831, 45, footnote (Real del Monte, Hidalgo, Mexico).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 279 (New Mexico); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 17.—Baird, Cat. North Amer. Birds, 1859, No. 16.—Xantus, Proc. Acad. Nat. Sci. Philadelphia, 1859, 190 (Fort Tejon, Calif.).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 146 (Port Townsend, Wash.).—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 43 (Arizona).—

Cooper, Orn. California, Land Birds, 1870, 465.—Cubas, Quadros Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173 (common names, Mexico).

Accipiter ? mexicana Gray, Hand-list, i, 1869, 33, No. 313.

Accipiter mexicanus Sharpe, Hand-list, i, 1899, 252.—Stresemann, Journ. für Orn. lxxii, 1924, 437 (tax.; distr.).

Accipter cooperi mexicanus Ridgway, Proc. U. S. Nat. Mus., xi, 1888, 92 (diagnosis; range).—Thayer and Bangs, Proc. Biol. Soc. Washington, xix, 1906, 18 (La Chumata, nw. Sonora, breeding).—Grinnell, Biota San Bernardino Mountains, 1908, 57 (breeding); Condor, xxvii, 1925, 76 (added to California list).—Swann, Synopt. List Accip., pt. 1, 1919, 32; Synop. Accip., pt. 1, 1921, 53.—Dawson, Birds California (stud. ed.), iii, 1923, 1664 (genl., California).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 151 (distr.; Guatemala).

Accipiter cooperii mexicanus Thayer and Bangs, Condor, ix, 1907, 136 (Rosario, Lower California, Nov.).—Oberholser, Auk, xxxix, 1922, 247.—Swann, Monogr. Birds Prey, i, 1926, 292 (monogr.).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 242 (Sonora, Mexico); vii, No. 12, 1932, 131 (Tiburón Island, Sonora, Mexico rec.); viii, 1936, 127 (s.c. Arizona: Baboquivari Mountains and Santa Rita Mountains, several records, several breeding records); Pacific Coast Avif. No. 24, 1936, 20 (Charleston Mountains, Nev.; common and generally distributed fall migr.; spec.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 53 (Sonora; fairly common resident).—Willett, Pacific Coast Avif., No. 21, 1933, 41 (syn.).—Huey, Auk, lvi, 1939, 321 text (Arizona: Mount Trumbull, 1 seen).

Nisus cooperi b. var. *mexicanus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 59 (Mexico).

Nisus cooperi . . . var. *mexicanus* Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 231.

Nisus cooperi mexicanus Goode, U. S. Nat. Mus. Bull. 20, 1883, 331.

Cooperastur mexicanus Gurney, Cat. Birds Prey, 1894, 22.

Lepthierax cooperi Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 254.

Cooperastur cooperi Gurney, Cat. Birds Prey, 1894, 22.

Falco stanleii Audubon, Birds Amer., fol. ed., 1828, pl. 36, Orn. Biogr., i, 1831, 1 [pl. 36] (Louisville, Ky.).—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 91.

Falco stanleyii Audubon, Orn. Biogr., v, 1839, 376.

Falco stanleyi Palmer, Condor, xxx, 1928, 296, in text (patronymics).

Cooperastur stanleyi Bonaparte, Rev. Mag. Zool., vi, 1854, 538.

Astur fuscus Giraud, Birds Long Island, 1844, 19 (Long Island, N. Y.; not very abund.).

Nisus fuscus Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado; lower wooded areas); Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Illinois; res.); Proc. Boston Soc. Nat. Nist., 1874, 23 (lower Wabash Valley); Bull. Essex Inst., vii, 1875, 22 (upper Humboldt Valley), 34 (Parleys Peak, Wahsatch Mountains), 38 (Nevada).—Nelson, Bull. Essex Inst., viii, 1876, 118 (ne. Illinois; abund. migr.; few breed); ix, 1877, 46 (Mount Carmel, s. Illinois; rare), 50, in text (Fox Prairie, Ill.).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 135 (Camp Harney, Oreg.; rare).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; summer res.; rare).

Acipiter fuscus Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; common; breeds).—Nelson, Proc. Boston Soc. Nat. Hist., xviii, 1875, 363

(Nevada City, Calif.).—Gibbs, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 3, 1879, 490 (Michigan; common summer res.).

Accipeter fuscus Boies, Cat. Birds Southern Michigan, 1875, No. 130 (s. Michigan; res.).

Nisus pileatus (not *Accipiter pileatus* Vigors) Kaup, *in* Jardine's Contr. Orn., 1850, 64, part.

Accipiter pileatus Strickland, Orn. Syn., i, 1855, 105, part.

ACCIPITER GUNDLACHI Lawrence

Gundlach's Hawk

Adult male.—Similar to *A. cooperii*, but with breast and sides of neck plain ash-gray; lower part of breast and upper portion of abdomen plain rufous, the feathers narrowly margined with white; tibiae rufous, the feathers with subterminal darker bars and lighter tips; forehead, crown, and occiput sooty black; upper plumage dull bluish ash, the feathers of the back with brownish margins; tail of the same color as the back, partly tinged with dull rufous and crossed with four brown bars, three of which are imperfect, being but little developed on the outer webs; the outer bar, however, crosses both webs and is narrowly tipped with white; remiges brown, having the shafts, as are also those of the rectrices, reddish brown; cheeks dusky ash; space forward of the eye pale dull rufous; a line of whitish feathers runs along the edge of the crown and extends over the eye; throat ashy white tinged with rufous; sides of the neck, upper part of the breast and a band running to the hind neck, grayish ash; lower portion of the breast and upper part of the abdomen rufous, the feathers very narrowly edged with dull white, lower part of abdomen of a paler rufous, with transverse bars of dull white; long feathers of the sides grayish ash tinged with rufous and destitute of bars or spots; sides just above the junction of the tail plain rufous; thighs of a bright but rather pale rufous, the feathers having darker submarginal ends, terminating with very narrow edgings of dull white; under wing coverts and axillars bright rufous marked with white; the feathers of the throat, breast, and sides have their shafts dark brown; upper tail coverts grayish ash, lower tail coverts white; bill horn color, with a whitish mark on the tooth and also on the edge of the lower mandible near its base; cere and orbital space greenish yellow; iris red; feet pale greenish yellow.

Adult female.—Similar to the male but with the upperparts without a bluish cast, with underparts more heavily marked and streaked, less barred with sayal brown or snuff brown, and with wider, more conspicuous blackish shaft streaks; chin and throat heavily streaked with hair brown. Feet somewhat heavier.

Immature.—Similar to that of *A. cooperii*, but darker and more

heavily marked below (only slightly more so than the darkest examples of *cooperii*). Feet somewhat heavier.

Natal down.—Not known.

Adult male.—Wing 247–250; tail 197–205; culmen from cere 16-17.5; tarsus 67.5–70; middle toe without claw 43–46 mm. (2 specimens).

Adult female.—Wing 268; tail 237; culmen from cere 21; tarsus 79; middle toe without claw 53 mm. (1 specimen).

Range.—Cuba, especially in the lowland forests; now possibly nearly extinct.

Type locality.—Hanábana, Cuba.

Astur cooperi (not *Falco cooperii* Bonaparte, 1828) Lembeye, Mem. Soc. Real Econ. Habana, ser. 2, vi, No. 5, 1849, 333; Aves Cuba, 1850, 17.—Cabanis, Journ. für Orn., 1854, p. lxxxii (Cuba).—Gundlach, Journ. für Orn., 1861, 403 (Cuba; crit.).

Accipiter cooperii Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).

Nisus pileatus (not *Falco pielatus* Temminck, 1823) Lembeye, Aves Cuba, 1850, Suppl., 125.

Astur pileatus Cabanis, Journ. für Orn., 1854, p. lxxxii (Cuba; crit.).—Gundlach, Journ. für Orn., 1861, 403 (Cuba; crit.).

Accipiter pileatus Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).

Accipiter mexicanus (not of Swainson, 1832) Brewer, Proc. Boston Soc. Nat. Hist, vii, 1860, 306 (Cuba).

Accipiter gundlachi, Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 252 (Hanábana, Cuba; coll. G. N. Lawrence).—Albrecht, Journ. für Orn., 1861, 200.—Gundlach, Journ. für Orn., 1861, 322; Repert. Fisico Nat. Cuba, i, 1865–66, 224; Journ. für Orn., 1871, 367 (crit.); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 100; Contr. Orn. Cubana, 1876 (=1873), 42; Orn. Cubana, 1895, 22.—Gray, Hand-list, i, 1869, 33, No. 319.—Sclater and Salvin, Exotic Orn., pt. 11, 1867, 170; Nom. Av. Neotr, 1873, 120.—Cory, List Birds West Indies, rev. ed., 1886, 22; Auk, iv, 1887, 40 (descr.; syn.); Birds West Indies, 1889, 198; Cat. West Indian Birds, 1892, 10, 98, 128.—Sharpe, Hand-list, i, 1899, 252.—Stresemann, Journ. für Orn., lxxii, 1924, 437 (tax.; distr.).—Swann, Monogr. Birds Prey, i, p. 5, 1926, 294 (monogr.).—Peters, Check-list Birds of World. i, 1931, 216 (distr.).—Bond, Birds West Indies, 1936, 61, 62, in text, 63, 414 (Cuba; rare but widely distr.; Oriente, Pinar del Río, Ciénaga de Zapata); List Birds West Indies, 1940, 22 (Cuba); ed. 2, 1945, 22 (very rare).—Barbour, Mem. Nuttall Orn. Club, ix, 1943, 33 (Cuba; rare).—Conover, Fieldiana, xxxi, 1946, 41 (plum.; specimen taken 1935).

Accipiter cooperi b. *gundlachi* Coues, Birds Northwest, 1874, 335 (syn.).

Accipiter cooperi gundlachi Swann, Synopt. List Accip., pt. 1, 1919, 32; ed. 2, pt. i, 1921, 53.

Accipiter gundlachii Sharpe, Cat. Birds Brit. Mus., i, 1874, 137, footnote.—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 45 (Cuba).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517 (Cuba; on way to extinction).

Accipiter (*Cooperastur*) *gundlachii* Gurney, List Diurn. Birds Prey, 1884, 44.

Nisus cooperi, var. *gundlachi* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 223 (descr. young; synonymy).

Nisus gundlachi Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 86 (monogr.); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 104 (monogr.).

Cooperastur gundlachii Gurney, Cat. Birds Prey, 1894, 22, 33 (crit.).

ACCIPITER SUPERCILIOSUS FONTANIERI Bonaparte

CENTRAL AMERICAN TINY HAWK

Adult male.—Above (back, scapulars, interscapulars, rump, and upper tail coverts) dusky neutral gray to plumbeous-black; the forehead, crown, and occiput black; upper wing coverts, remiges, and rectrices fuscous with a plumbeous cast; the remiges broadly but obscurely barred with black on the inner webs; the inner webs internally becoming white on the fuscous interspaces; below the remiges are whitish barred with deep mouse gray; the three outermost primaries distinctly sinuated on their inner webs, the fourth faintly so; rectrices with four broad black bands, the black bands slightly broader than the plumbeous-fuscous interspaces; tipped very narrowly with whitish; below the rectrices are whitish barred with dark mouse gray; lores, cheeks, and auriculars deep neutral gray indistinctly barred with dark neutral gray; sides of throat dark neutral gray; chin and upper throat white; lower throat, breast, abdomen, sides, flanks, thighs, under wing coverts and under tail coverts white barred narrowly with brownish deep mouse gray; the bars becoming broader on the sides and flanks and narrower on the lower middle abdomen; iris crimson; bill black; feet cadmium yellow; soles of toes Indian yellow.

Adult female.—Similar to the male, but larger and with the underparts slightly washed with buffy or tawny and the upperparts washed with fuscous.

Immature.—Brown phase (sexes alike except for size). Entire upperparts fuscous-black, darkest on the head, where it becomes almost black; wings as in male; rectrices fuscous narrowly tipped with white and crossed by six or seven broad black bars, the bars broader than the interspaces; the interspaces becoming white on their concealed inner borders; below the remiges are white barred with fuscous; sides of head smoke gray streaked with dark hair brown; underparts light buff barred with buffy brown, the bars narrowest on the lower abdomen, widest on the sides and flanks. *Rufous phase* (sexes alike except for size). Forehead, brown, and occiput fuscous; back, scapulars, interscapulars, upper wing coverts, secondaries, rump, and upper tail covers bright hazel, the feathers with large, partly concealed subapical areas of mummy brown and wholly concealed white basal areas; the secondaries transversely barred with blackish; the primaries similar, but broadly tipped with fuscous and with the inner webs paling to buff on the inner edges; rectrices bright hazel crossed with six transverse, narrow, black bars; superciliary stripe, auriculars, and cheeks russet; sides of throat russet becoming paler posteriorly; chin and middle of throat whitish lightly washed with very pale russet; breast, abdomen, sides, flanks, thighs, and under tail coverts pale cinnamon abundantly barred with dark russet, the dark bars becom-

ing narrower and lighter on the lower abdomen and wanting (or almost so) on the thighs and under tail coverts; under wing coverts light pinkish cinnamon sparsely (or not at all) barred with dark fuscous.

Natal down.—Not described.

Adult male.—Wing 127–134 (131.5); tail 84–89 (87.1); culmen from cere 10.5–11.5 (10.9); tarsus 38–41 (39.5); middle toe without claw 27–29.5 (28.2 mm.) (6 specimens).

Adult female.—Wing 148; tail 103; culmen from cere 12; tarsus 43; middle toe without claw 30.5 mm. (1 specimen).

Range.—From extreme southeastern Nicaragua (Greytown) south through Costa Rica (Carrillo, Guápiles, El Hogar) and Panama (Lion Hill, Santiago de Veragua, Obaldia) to western Colombia (Barbacoas and Puerto Valdivia).[1]

Type locality.—Santa Cruz, Magdalena, Colombia.

Accipiter fontainieri [sic] Bonaparte, Compt. Rend. Acad. Sci. Paris, xxxvii, 1853, 810; Rev. Mag. Zool., v, 1853, 578 (locality not stated=Santa Cruz, Santa Marta; type rufous phase of immature plumage, *fide* Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 459); Compt. Rend., xxxvii, 1853, 807 (reprint).

Accipiter superciliosus fontanieri Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, 1929, 459 (crit.; distr.).

(?) *Jeraspiza fontainieri* Bonaparte, Rev. Mag. Zool., vi, 1854, 538.

Accipiter collaris (not *Accipiter collaris* Sclater) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 462 (Lion Hill, Panama).—Stone Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Canal Zone; listed).

Accipiter tinus (not *Falco tinus* Latham) Salvin, Proc. Zool. Soc. London, 1867, 158 (Santiago de Veraguas, Panama; crit.).—Sclater and Salvin, Nom. Av. Neotr., 1873, 120, part (Panama).—Cherrie, Proc. U. S. Nat. Mus., xiv, 1891, 537 (Greytown, Nicaragua).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1899, 5, part (line of Panama Railway; Santiago de Veraguas; Greytown, Nicaragua).—Sharpe, Hand-list, i, 1899, 252, part (Panama).—Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 130 (Las Nubes, Santa Marta, Colombia).—Carriker, Ann. Carnegie Mus., vi, 1910, 454 (Carrillo, Guapiles, and El Hogar, Costa Rica; habits).

Accipiter collaris (not of Sclater ex Kaup) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 462 (Lion Hill, Panama; crit.).

Nisus (? *Hieraspizias*) *superciliosus* (not *Falco superciliosus* Linnaeus) Ridgway, U. S. Geol. and Geogr. Surv. Terr. Bull. 2, 1876, 125, part (Panama; Santiago de Veraguas; "Guatemala").

Accipiter superciliosus (not *Falco superciliosus* Linnaeus) Hellmayr, Proc. Zool. Soc. London, 1911, 1203 (Tado, Pacific Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 241 (Barbacoas and Puerto Valdivia, w. Colombia).—Stresemann, Journ. für Orn., lxxii, 1942, 435 (tax.; distr.).

Accipiter subniger (not *Sparvius subniger* Vieillot) Ridgway, Proc. U. S. Nat. Mus., xiv, 1891, 478 (Greytown, Nicaragua; measurements; fresh colors of unfeathered parts).

Accipiter superciliosus exitiosus Bangs and Penard, Proc. New England Zool. Club, vii, 1920, 45 (Carrillo, Costa Rica; coll. Mus. Comp. Zool.).—Swann,

[1] There is no question that *fontanieri* and *exitiosus* are the same.

Synop. Accip., pt. 3, 1922, Errata and Addendum, p. iii (Costa Rica to w. Colombia); Monogr. Birds Prey, i, pt. 5, 1926, 296 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 147 (Las Nubes, Santa Marta, Colombia; crit. on *Accipiter fontainieri* Bonaparte, which seems to be earliest name of this subspecies).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 187 (crit.; nomencl.; type in Mus. Comp. Zool.).—Peters, Check-list Birds of World, i, 1931, 218 (distr.).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Obaldia, Panama); lxxviii, 1935, 298 (Panama:—humid tropical zone; 3 records).

Accipiter exitiosus Stresemann, Journ. für Orn., lxxii, 1924, 436 (crit.; tax.).

ACCIPITER STRIATUS VELOX (Wilson)

Eastern Sharp-shinned Hawk

Adult male.—Forehead blackish plumbeous, with pinkish cinnamon, pinkish-buff, or avellaneous margins to the feathers; crown and occiput blackish plumbeous to plumbeous-black; nape blackish plumbeous with concealed white bases; remainder of upperparts shading from blackish plumbeous on the upper back to dark or deep plumbeous on the rump and upper tail coverts; tertials with concealed large white and smaller rusty spots, upper tail coverts sometimes narrowly tipped with white, and more or less irregularly barred or marked with white basally. Tail neutral gray above, pallid neutral gray below, white toward the bases of the inner webs of the outer rectrices, narrowly tipped with white and crossed by four bands of grayish fuscous (fuscous to fuscous-black shaded with dark neutral gray), the distal one the widest and the basal one concealed by the upper tail coverts. Cheeks, ear coverts, and sides of neck ochraceous-tawny, avellaneous, light drab, or pinkish buff, with fine but conspicuous blackish shaft lines; chin and throat white to pinkish buff, with conspicuous fine blackish shaft lines; under tail coverts pure white; remainder of underparts white, irregularly barred with ochraceous-tawny, cinnamon-brown, buckthorn brown or cinnamon-buff, usually less dense on the lower abdomen, occasionally with the breast and flanks more or less uniform tawny. Under wing coverts white or pinkish buff, streaked, spotted or occasionally barred with fuscous. Wings fuscous above, shading to deep plumbeous on the inner secondaries, white toward the bases of the inner webs, pallid neutral gray below and broadly barred with dark fuscous or fuscous-black. Bill black or blackish; cere yellow or greenish yellow; iris red; feet yellow.

Adult female.—Similar to the male, but larger, more fuscous, less gray above, and on the average less brightly colored below. Bill, terminal two-thirds deep black, basal portion pale blue; interior of mouth bright cobalt blue, more purplish far back; cere, rictus, eyelids, and naked "eyebrow" oil green; iris deep orange-red; tarsi and toes brownish lemon yellow; claws jet black.

Immature male.—Upperparts fuscous, darker on the head and upper back, narrowly edged with ochraceous-tawny or russet (sometimes wider, sometimes narrower, occasionally absent); supercillia margined with creamy buff (cartridge buff in worn plumage); occiput and nape basally white, the feathers of the latter usually more widely edged with russet; scapulars and tertials and upper tail coverts with large concealed white spots. Ear coverts and sides of neck ochraceous-tawny to cinnamon-buff heavily streaked with fuscous; chin and throat white to cartridge buff narrowly streaked with fuscous or fuscous-black; under tail coverts pure white (occasionally narrowly streaked with fuscous); remainder of underparts white to cartridge buff, broadly streaked on the chest, streaked or spotted on the abdomen, and spotted or barred on the tibiae with cinnamon-brown, sayal brown, tawny-olive, or hair brown. Wings and tail as in adult, but browner, less gray. Bill pale bluish horn color, tipped black, cere whitish; iris grayish yellow, yellow, or straw; legs and feet yellow or yellowish, claws blackish.

Immature female.—Like the male, but larger.

Juvenal.—Like the immature.

Natal down.—Pure white, pale pinkish buff or cartridge buff.

Adult male.—Wing 162–185 (171.1); tail 134–152.5 (140.8); culmen from cere 9.5–11 (10.3); tarsus 46–54 (49.9); middle toe without claw 28–35 (30.7 mm.).[2]

Adult female.—Wing 180–210 (200.3); tail 150–179.5 (165.6); culmen from cere 10.5–14 (12.7); tarsus 45–58.5 (54.9); middle toe without claw 32.5–38.5 (36.1 mm.).[3]

Range.—Breeds throughout most of Alaska (except the southwestern coastal area), Canada, and the United States, from northwestern Alaska (Kotzebue Sound), the Aleutian Islands, northwestern Mackenzie (Great Bear Lake), central Manitoba, northern Ontario, central Quebec (Delaware), southern Labrador, Newfoundland, and Nova Scotia south to South Carolina, Florida (local), the Gulf coast, Texas, New Mexico, Arizona, and California (to Carmel River, Monterey County, and the San Bernardino Mountains), and possibly northwestern Mexico south to Sinaloa (whence it recorded as "resident" but no definite breeding records given).

Winters from southwestern Alaska (?), southern British Columbia, Vancouver Island, western Montana, Nebraska, southern Minnesota (casual), Illinois, Indiana, Ohio, southern Ontario, New York, southern Vermont, southern New Hampshire, southern Maine, and New Brunswick (casually), south through the United States, all of Mexico, but chiefly the western part (definite records from Baja California,

[2] Fifty-one specimens from all parts of the range.

[3] Forty specimens from all parts of the range.

Sinaloa, Jalisco, Veracruz, Puebla, Guerrero, Oaxaca, and Yucatán) to Guatemala (Vera Paz, Lake Atitlán, and the Pacific slope generally), Nicaragua (Bluefields River), Costa Rica (El Mojon, Guayabo, Cariblanco de Sarapiquí, Volcán de Irazú, and Escazú), and, casually, to Panama (Volcán de Chiriquí).[4]

Accidental in the Bahamas (New Providence, Acklin, and Great Inagua Islands), in Bermuda, and in Cuba.

Type locality.—Banks of the Schuylkill River, near Philadelphia, Pa.

(?) *Falco dubius* (not of Sparrman, 1788) Gmelin, Syst. Nat., i, pt. 2, 1788, 281 (New York and Carolina; based on *Dubious Falcon* Pennant, Arctic Zool., ii, 1785, 313).—Daudin, Traité d'Orn., ii, 1800, 122 (Carolina).

Falco fuscus (not of Fabricius, 1780) Gmelin, Syst. Nat., i, pt. 2, 1788, 280.—Latham, Index Orn., i, 1790, 43.—Daudin, Traité d'Orn., ii, 1800, 86.—Shaw, Gen. Zool., vii, pt. 1, 1809, 161.—Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, 1828, 433.—Audubon, Orn. Biogr., iv, 1838, 522, pl. 374.—Nuttall, Man. Orn. U. S. and Canada, Land Birds, 1840, 87.

Accipiter fuscus Bonaparte, Geogr. and Comp. List, 1838, 5; Consp. Gen. Av., i, 1850, 32; Rev. Mag. Zool., vi, 1854, 538.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 71 (Quebec; Delaware).—Baird, Rep. Stansbury's Expl. Great Salt Lake, 1852, 314 (Salt Lake Valley, Utah); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (Camp Yuma, Calif.); Cat. North Amer. Birds, 1859, No. 17.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 279 (Shoalwater Bay, Wash.; San Francisco, Calif.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 18.—Brewer, North Amer. Ool., i, 1857, 18, pl. 3, figs. 23, 24, pl. 5, fig. 54.—Sclater, Proc. Zool. Soc. London, 1858, 295 (La Parada, Oaxaca); 1864, 178 (near City of Mexico); 1866, 303 (monogr.).—Sclater and Salvin, Ibis, 1859, 218 (Vera Paz and Pacific slope Guatemala); Proc. Zool. Soc. London, 1867, 280 (Bluefield River, Nicaragua); Nom. Av. Neotr., 1873, 120.—Albrecht, Journ. für Orn., 1861, 50 (Bahamas).—Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).—Verrill, Proc. Essex Inst., iii, 1862, 140 (Oxford County, Maine, breeding).—Lawrence, Ann. Lyc. Nat. Hist. N. Y., viii, 1866, 280 (vicinity New York City); ix, 1868, 134 (El Mojon, Costa Rica); Mem. Boston Soc. Nat. Hist., ii, 1874, 298 (Mazatlán, Sinaloa, resident; habits); U. S. Nat. Mus. Bull. 4, 1875, 41 (Santa Efigenia and Tehuantepec City, Oaxaca, Nov., Jan.).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 271, part (Koyukuk, Yukon River, Sitka, Alaska).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 141, part; Amer. Nat., vii, 1873, 199, in text (Richland County, Ill., June); Proc. U. S. Nat. Mus., iii, 1880, 193, part; Nom. North Amer. Birds, 1881, No. 432, part.—Cooper, Orn. California, Land Birds, 1870, 466.—Coues, Key North Amer. Birds, 1872, 212; Check List North Amer. Birds, 1873, No. 338, part; Birds Northwest, 1874, 333, part; Check List North Amer. Birds, ed. 2, 1882, No. 494, part; Key North Amer. Birds, ed. 2, 1884, 528, part.—Salvin, Proc. Zool. Soc. London, 1870, 216 (Volcán de Chiriquí, Panama).—Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (Utah).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 135, part (Quebec;

[4] It is impossible to allocate some of the Mexican winter records with absolute certainty. While all the specimens involved that have been examined are *velox*, some of the others may refer to *suttoni*.

Delaware; Vancouver Island; California; Jalapa, Veracruz), 457, part (Toronto, Ontario; Panama); Hand-list, i, 1899, 252.—Rathbun, Rev. List Birds Central New York, 1879, 27 (breeding).—Cory, Birds Bahama Islands, 1880, 128 (New Providence Island); List Birds West Indies, rev. ed., 1886, 22 (Bahamas).—Mearns, Bull. Essex Inst., xii, 1880, 122 (Hudson Highland, breeding).—Wheaton, Rep. Birds Ohio, 1882, 420, 579 (Ohio; syn.; descr.).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Cubas, Cuadros Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173, part (Mexico; common names).—Gurney, List Diurn. Birds Prey, 1884, 42; Cat. Birds Prey, 1894, 22.—Reid, U. S. Nat. Mus. Bull. 25, 1884, 218 (Bermudas, 2 specs.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 227, part (Mexico).

Accipitre fuscus Gambel, Journ. Acad. Nat. Sci. Philadelphia, i, 1847, 28.

Accipiter fuscus fuscus Swann, Synopt. List Accip., pt. 1, 1919, 31, part; Synop. Accip., pt. 1, 1921, 52, part.

Astur fuscus Audubon, Synopsis, 1839, 18; Birds Amer., 8vo ed., ed. i, 1840, 100, pl. 25.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 90.—Maximilian, Journ. für Orn., 1858, 15.—Martens, Journ. für Orn., 1859, 212 (Bermuda).

Nisus (*Nisus*) *fuscus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 259.

Nisus fuscus Kaup, Isis, 1847, 177 (monogr.), 366, 372, 378; *in* Jardine's Contr. Orn., 1850, 64.—Schlegel, Mus. Pays-Bas, ii, No. 4, livr. i, 1862, 30 (monogr.); No. 36, livr. 10, 1873, 69 (crit.).—Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado); vii, 1875, 22 (Upper Humboldt Valley, Nev.); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 224, part; Proc. Boston Soc. Nat. Hist., xvi, 1874, 324 (lower Wabash Valley, resident); Ann. Lyc. Nat. Hist. New York, x, 1874, 380 (Illinois); U. S. Geol. and Geog. Surv. Terr., ser. 2, Bull. 2, 1876, 110, part (monogr.); Orn. 40th Parallel, 1877, 581 (Upper Humboldt Valley, Nev., Sept.).

(?) *Falco obscurus* Latham, Index Orn., i, 1790, 44 (based on *Dusky Falcon* Pennant, Arctic Zool., ii, 1785, 213).

Accipiter striatus Vieillot, Ois. Amér. Sept., i, 1807, 42, pl. 14 (fig.; descr.; genl.).—Snyder, Trans. Roy. Can. Inst., xxii, 1938, 183 (w. Rainy River district, Ontario).—Shortt, Contr. Roy Ontario Mus. Zool., No. 17, 1939, 10 (Yakutat Bay, Alaska).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 42 (Prince Edward County, Ontario).—Yocom, Murrelet, xxvi, 1945, 20 (Colville Valley, Wash.); xxvii, 1946, 10 (Kootenai County, Idaho).—Grove, Murrelet, xxvii, 1946, 33 (Lopez Island, Wash.).—Mowbray, Condor, xlix, 1947, 173 (Salinas River bottom, Calif.).

Sparvius striatus Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 338.

Nisus striatus Cuvier, Règne Anim., i, 1829, 334.

(?) *Falco doliatus* Shaw, Gen. Zool., vii, pt. 1, 1809, 206 (Carolina; based on *Emerillon varié* Sonnini, ed. Buffon, and *Emerillon bariolé* Daudin, Traité).

Falco velox Wilson, Amer. Orn., v, 1812, 116, pl. 45, fig. 1 (Schuylkill River, Pa.).—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 347; Obs. Wilson's Amer. Orn., 1826 [8]; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 29; Contr. Maclurian Lyc., i, 1827, 10; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1828, 433 (crit.).—Lesson, Traité d'Orn., 1831, 59 (crit.).

Accipiter velox Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 31.—Vigors, Zool. Voy. *Blossom*, 1839, 15.—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 332, part; ed. 3, 1910, 155, part.—Ferrari-Pérez, Proc. U. S. Nat. Mus., ix, 1886, 168 (Tecali, Puebla, Mexico).—Ralph and Bagg, Trans. Oneida Hist. Soc., iii, 1886, 117 (Oneida County, N. Y.,

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Carolina, 1942, 90 (North Carolina; descr.; habits).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 376 (Uinta Basin, Utah).—Dixon, Condor, xlv, 1943, 207 (Kings Canyon National Park, Calif.).—Wallace, Auk, lx, 1943, 405 (Pleasant Valley, Mass.; nesting).—Gabrielson, Auk, lxi, 1944, 120 (Alaska; rare, a few individuals seen; single individuals seen at Tustamina Lake and along Richardson Highway s. of Fairbanks).—Hill, Auk, lxi, 1944, 230, 231 (meas.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 173 (Kansas; uncommon winter res.).

Accipiter striatus velox Peters, Check-list Birds of World, i, 1931, 221, part.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (Volcán de Chiriqui, Panama).—Bond, Birds West Indies, 1936, 77, in text (West Indies; migr.; rare winter straggler to Cuba (doubtful) and New Providence), 414 (West Indies; migr.); Check List Birds West Indies, 1940, 22 (West Indies; rare winter straggler; Cuba (doubtful) and New Providence Island; bone on Exuma Island; not believed to breed); ed. 2, 1945, 22 (West Indies; rare winter straggler).—van Rossem, Pacific Coast Avif., No. 24, 1936, 19 (Charleston Mountains, Nev.; common migrant; spec.); Auk, lvi, 1939, 128, in text (crit.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 54 (Sonora; common migrant and winter visitant).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 18 (Brewster County, Tex.; crit.; sev. records).—Compton, Univ. Califorina Publ. Zool., xlii, No. 3, 1938, 175 (pterylosis).—MacLulich, Contr. Roy. Ontario Mus. Zool., No. 13, 1938, 7 (Algonquin Province Park, Ontario; regular but not abundant in summer; breeds; spec.).—Oberholser, Bird Life Louisiana, 1938, 159 (Louisiana; rare and local summer res.; breeds; food; habits).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 9 (Michigan; common transient and rare summer resident; rare in winter in southern counties; 3 nests actually found).—Aldrich and Nutt, Sci. Publ. Cleveland Mus. Nat. Hist., iv., 1939, 19 (e. Newfoundland; single spec. seen at Makinson's Grove).—Cowan, Occ. Pap. British Columbia Prov. Mus., No. 1, 1939, 24 (Peace River district, Brit. Columbia; sparingly distributed).—Wetmore, Proc. U. S. Nat. Mus., lxxxvi, 1939, 180 (Tennessee; Reelfoot Lake; Union City; Indian Mound, Cumberland River; near Bean Station; Shady Valley; Roan Mountain); lxxxviii, 1940, 534 (Kentucky; 2 spec. near Canton and s. of Brownsville).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 96 (w. Texas; Guadalupe Mountains; fairly common; spec.).—Trautman, Misc. Publ. Univ. Michigan Mus. Zool., No. 44, 1940, 208 (Buckeye Lake, Ohio; rare spring and fall migrant; very rare in winter; food).—Sutton and Burleigh, Ann. Carnegie Mus., xxviii, 1941, 170 (Hidalgo; 6 miles n. of Jacala; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 202 (Chichen Itzá; Yucatán; spec.).—Huey, Trans. San Diego Soc. Nat. Hist., ix, 1942, 363 (Organ Pipe Cactus National Monument, Ariz.).—Behle, Bull. Univ. Utah, xxxiv, No. 2, 1943, 23, 35 (sw. Utah; Washington County; Pine Valley Mountain region); Condor, xlvi, 1944, 71 (Utah).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).—Burdick, Condor, xlvi, 1944, 238 (n. Cascade Mountains, Wash.).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 358 (Gulf coast of Mississippi; limited number in winter).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 99 (California; winter vis.; summer; breeds in n. part).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; winter res.; no definite breeding records).—Haecker, Moser, and Swenk, Nebraska Bird Rev. xiii, 1945, 8 (Nebraska; common; breeds).—McAllister and Marshall, Auk, lxii, 1945,

182 (Fremont National Forest, Oreg.).—Packard, Auk, lxii, 1945, 374 (Rocky Mt. National Park, Colo.).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945 ("Navaho Country," se. Utah and ne. Arizona; breeding; summer res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mount Katahdin region, Maine).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist. i, 1947, 198 (Idaho).

?*Astur velox* Maximilian, Journ. für Orn., 1858, 14.

Falco pennsylvanicus Wilson, Amer. Orn., vi, 1812, 13, pl. 46, fig. 1 (Philadelphia, Pa.; not of p. 92, pl. 54, fig. 1=*Buteo platypterus*).—Temminck, Planches Col., 1821, i, 199, pl. 67 and text.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 348; Obs. Wilson's Amer. Orn. 1826, [8, 239]; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 29.

Accipiter pennsylvanicus Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1815, 32.—Jameson, ed. Wilson's Amer. Orn., i, 1831, 70.—Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 8, 44.

Astur pennsylvanicus Lesson, Man. d'Orn., i, 1829, 32.—Jameson, ed. Wilson's Amer. Orn., i, 1831, 70.

Nisus pennsylvanicus Cuvier, Règne Anim., ed. 2, i, 1829, 334.—(?) Lesson, Traité d'Orn., 1831, 59, pl. 12, fig. 2 ("Bresil").

Nisus malfini Lesson, Traité d'Orn., 1831, 38.

Accipiter fringilloides (not of Vigors, 1827) Jardine, ed. Wilson's Amer. Orn., ii, 1832, 215.

(?) *Nisus pacificus* Lesson, Écho du Monde Savant, June 19, 1845, col. 1086 (Acapulco, Guerrero, sw. Mexico); Descr. Mamm. et d'Ois., 1847, 177 (Acapulco and California).

Accipiter velox pacificus Nelson, Proc. Biol. Soc. Washington, xviii, 1905, 122 (crit. nom.).—Thayer and Bangs, Condor, ix, 1907, 136 (Rosario, Lower California, Nov.).—Swann, Monogr. Birds Prey, i, 1926, 288, part (monogr.).

Accipiter velox rufilatus Ridgway, Proc. U. S. Nat. Mus., xi, 1888, 92, part ("western North America"; type locality not indicated, but from Camp Scott, Fort Bridger, Utah; coll. U. S. Nat. Mus.).—Grinnell, Pacific Coast Avif., No. 3, 1902, 32 (California; common in winter; some breed).—Ray, Auk, xx, 1903 (Lake Valley, Calif., 6,500 ft.); xxii, 1905, 366 (central Sierra Nevada, 7,500 feet).—Swarth, Pacific Coast Avif., No. 4, 1904, 6 (Huachuca Mountains, Ariz.; breeding?).—Willett, Pacific Coast Avif., No. 21, 1933, 41 (syn. for *A. v. velox*).—van Rossem, Auk, lvi, 1939, 128, text (Utah.).

Accipiter rufilatus Sharpe, Hand-list, i, 1899, 252.

Accipiter fuscus rufilatus Swann, Synopt. List Accip., pt. 1, 1919, 31, part.

Accipiter ardesiaceus Vieillot, Tabl. Encycl. Méth., iii, 1823, 1274.

Falco columbarius columbarius (not of Linnaeus, 1758) Richards, Condor, xxvi, 1924, 100 (Grass Valley, Calif.).

ACCIPITER STRIATUS SUTTONI van Rossem

Mexican Sharp-shinned Hawk

Adult male.—Similar to that of *A. s. velox* but underparts paler, more reddish, less brownish, and much less maculated; breast, sides, and thighs practically immaculate light brick red, between tawny or ochraceous-tawny and vinaceous-russet; iris "dark brown, not red or

orange-red"; size apparently slightly larger than *A. s. velox.* (Description based on van Rossem, Auk, lvi, 1939, 127.)

Adult female.—Similar to the male, but larger.

Other plumages unknown.

Adult male.—Wing 174.5–187; tail 131–141; culmen from cere 9.5–10; tarsus 51–51.8; middle toe without claw 30–30 mm. (2 specimens).

Adult female.—Wing 192.5; tail 159; culmen from cere 12.3; tarsus 54.5; middle toe without claw 33.5 mm. (1 specimen).

Range.—Highlands of Mexico from the New Mexico–Chihuahua boundary (east side of San Luis Mountains), Nuevo León, and Veracruz (Cofre de Perote), south to Jalisco (Volcán de Colima and the Sierra Nevada de Colima). Occurs in the lowlands in winter, as at Tesia, Sonora.

Type locality.—Mesa del Chipinque, near Monterrey, Nuevo León, Mexico, about 4,500 feet.

Accipiter fuscus Cubas, Cuadro Geogr., Estadístico, Descr., e Hist. de los Estados Unidos Mexicanos, 1884, 173, part (Mexico; common names).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7, 8, 1894, 227, part (Mexico; listed).

Accipiter velox Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1899, 48, part (Volcán de Colima; Sierra Nevada de Colima; Cofre de Perote; Jalapa).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 242, part (Tesia, Sonora).

Accipiter velox velox Marsh and Stevenson, Auk, lv, 1938, 286, in text (Coahuila; breeding).

Accipiter striatus velox Sutton and Burleigh, Occ. Pap. Mus. Zool., Louisiana State Univ., No. 3, 1939, 25 (Monterrey; Nuevo León; 2 specimens).

Accipiter striatus Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 25 (ne. Mexico; Victoria, Tamaulipas; record); Auk, lvii, 1940, 237, in text (Veracruz; Las Vigas; 1 seen); Condor, xlii, 1940, 259, in text (San Luis Potosí; 2 records).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region, sw. Tamaulipas; seen).

Accipiter striatus suttoni van Rossem, Auk, lvi, 1939, 127, pl. 6 (col. pl.; orig. descr.; Mesa del Chipinque, near Monterrey, Nuevo León, Mexico, 4,500 feet; highlands of Mexico from New Mexico–Chihuahua boundary s. to Jalisco and the Sierra Nevada de Colima); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 55 (Sonora; rare winter and spring vis.).—Sutton and Burleigh, Condor, xliii, 1941, 159 (Nuevo León, Mexico; Mesa de Chipinque; meas.).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 525 (Michoacán; Cerro de Tancitaro; spec.; meas.; crit.).—Sutton and Pettingill, Wilson Bull., liv, 1942, 199 (Nuevo León, Mexico; breeding pair taken May 5 and 6, 1941, at Mesa de Chipinque).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).

Accipiter striatus subsp. Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 25 (Mesa del Chipinque, Nuevo León).

ACCIPITER STRIATUS PEROBSCURUS Snyder

PACIFIC SHARP-SHINNED HAWK

Like *Accipiter s. velox* in size, but darker, especially in juvenal plumage.

Adult male.—Similar to that of *A. s. velox*, but slightly darker, especially below, the whitish on the abdomen more restricted, the light bars on the feathers of the breast and sides reduced, this reduction particularly marked on the tibia; toes and tarsus yellow; iris reddish; bill slate; cere greenish. Not definitely separable in this plumage.

Adult female.—Slightly darker above than corresponding specimen of *A. s. velox* and with less whitish below but not certainly separable in this plumage.

Juvenal male.—Similar to that of *A. s. velox*, but upperparts averaging darker fuscous to fuscous-black, the pale bands on the tail hair brown; white markings on the scapulars, inner secondaries, and on the occiput more concealed and smaller; the rusty tips of the dorsal feathers darker, more russet; underparts more heavily and darkly streaked than in *A. s. velox*, the general effect being more dark than light color; iris yellowish gray, toes and tarsi greenish yellow; bill slate to blue; cere greenish.

Juvenal female.—Similar to the juvenal male but larger; iris yellowish, toes and tarsi yellow; bill slate to blue; cere greenish.

Natal down.—Not described.

Adult male.—Wing 174; tail 130; culmen from cere 10.1; tarsus 50; middle toe without claw 30.5 mm. (1 specimen).

Adult female.—Wing 206; tail 170; culmen from cere 12; tarsus 56.5; middle toe without claw 34.5 mm. (1 specimen).

Range.—Breeds in the Queen Charlotte Islands; possibly also in others of the islands and adjacent mainland coast of British Columbia and southeastern Alaska (from Comox on Vancouver Island and Brackendale on the mainland of British Columbia north to Yakutat Bay, Alaska), south to the Olympic Peninsula of Washington.

In winter from the Queen Charlotte Islands to Vancouver Island (Comax and Cedar) and to the mainland of British Columbia (Hazelton, Rainbow Mountains) south to Oregon (Tillamook and Portland).

Type locality.—McClinton Creek, Massett Inlet, Graham Island (Queen Charlotte Islands), British Columbia.

Accipiter fuscus DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 271, part (Sitka, Alaska).—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 141, part; Proc. U. S. Nat. Mus., iii, 1880, 193, part; Nom. North Amer. Birds, 1881, No. 432, part.—COUES, Key North Amer. Birds, 1872, 212, part; Check List North Amer. Birds, 1873, No. 338, part; Birds Northwest, 1874, 333, part; Check List North Amer. Birds, ed. 2, 1882, No. 494, part.

Accipiter fuscous COUES, Key North Amer. Birds, ed. 2, 1884, 528, part.

Accipiter fuscus fuscus Swann, Synopt. List Accip., pt. 1, 1919, 31, part; Synop. Accip., pt. 1, 1921, 52, part.

Accipiter velox American Ornithologists' Union, Check-list 1886, and ed. 2, 1895, No. 332, part; ed. 3, 1910, 155, part.—Ridgway, Man. North Amer. Birds, 1887, 227, part.—Bendire, Life Hist. North Amer. Birds, i, 1892, 186, part.—Fisher, Hawks and Owls United States, 1893, 32, part.—Grinnell, Univ. California Publ. Zool., v, 1909, 209 (imm. Bear Bay, Baranof Island, Alaska, Aug. 26; Hasselborg Lake, Admiralty Island, nest and eggs, May 25; seen Hooniah, Chichagof Island, Glacier Bay, and Helm Bay, se. Alaska); v, 1910, 386 (Port Nell, 4 specs., Knight Island, and near Valdez, se. Alaska).—Swarth, Univ. California Publ. Zool., vii, 1911, 60 (se. Alaska: Kupreanof Island, nest; Kuiu Island, Prince of Wales Island, Coronation Island, Heceta Island, Dall Island, Duke Island, Chickamin River, Revillagigedo Island, Mitkof Island, Thomas Bay, Port Snettisham, Taku River; in winter to southern California).—Patch, Can. Field Nat., xxxvi, 1922, 133 (Graham Island, Queen Charlotte Islands; 6 spec., Masset and Tow Hill, July 5–August 9).—Brooks, Auk, xl, 1923, 221 (spec.; Graham Island, Brit. Columbia, Aug.).—Munroe, Can. Field Nat., xxxviii, 1924, 175 (s. Vancouver Island, plum., 12 spec.).—Brooks and Swarth, Pacific Coast Avif., No. 17, 1925, 54 part (coastal areas, British Columbia: Vancouver Island; Masset, Queen Charlotte Islands).—Taverner, Birds Western Canada, 1926, 186, part.—Cumming, Murrelet, xii, 1931, 16 (Queen Charlotte Islands; Brit. Columbia; nesting; spec.).

Accipiter velox velox American Ornithologists' Union, Check-list, ed. 4, 1931, 65, part.—Cumming, Murrelet, xiii, 1932, 6 (Vancouver, Brit. Columbia).

Accipiter striatus velox Peters, Check-list Birds of World, i, 1931, 221, part.—Brodkorb, Condor, xlii, 1940, 123, in text (Hazelton, Brit. Columbia; spec.).

Accipiter velox rufilatus Ridgway, Proc. U. S. Nat. Mus., xi, 1888, 92, part.

Accipiter fuscus rufilatus Swann, Synopt. List. Accip., pt. 1, 1919, 31, part.

Accipiter velox pacificus Swann, Monog. Birds Prey, i, 1926, 288, part.

Accipiter striatus perobscurus Snyder, Occ. Pap., Roy. Ontario Mus. Zool., No. 4, 1938, 4 (orig. descr.; crit.).—Brodkorb, Condor xlii, 1940, 123–124 (spec., Hazelton, Brit. Columbia; also Portland and Tillamook, Oreg.).—American Ornithologists' Union, Auk, lxi, 1944, 444 (nomencl.).

ACCIPITER STRIATUS STRIATUS Vieillot

Haitian Sharp-shinned Hawk

Adult male.—Similar to that of *A. s. velox*, but smaller and with little or no pale edgings to the forehead; crown and occiput hardly any darker than the remainder of the upperparts, which are more slate color, less plumbeous; banding on tail not sharply defined. Cheeks, ear coverts, and sides of neck russet, or tawny with only faint shaft streaks; sides of breast, flanks, and tibiae uniform, or heavily barred with sayal brown; chin and throat white, tinged with rusty and narrowly streaked with black; lower abdomen and under tail coverts pure white; remainder of underparts barred with sayal brown, mixed with hair brown, the bars narrower and more regular than in *A. s. velox*. Bill leaden, tip black; cere pale green; iris reddish brown; tarsi greenish; toes yellow.

Adult female.—Similar to the adult male, but less brightly marked on the underparts. Differs from the female of *A. s. velox* in being smaller and grayer, less fuscous above, pure white on the lower abdomen, and more narrowly and regularly barred on the breast.

Immature male.—Similar to that of *A. s. velox* but the feathers of the back, the scapulars and the upper tail coverts without concealed white spots; the streaks on the lower parts slightly darker, less tawny or cinnamomeous.

Immature female (none seen).—Probably similar to the male, but larger.

Natal down.—Apparently unknown.

Adult male.—Wing 141–153 (149); tail 120–128 (124); culmen from the cere 10–10.5 (10.3); tarsus 45.5–48.5 (47.5); middle toe without claw 29.5–31.5 (30.3 mm.) (5 specimens).

Adult female.—Wing 181–186 (182.3); tail 147.5–155.5 (151.7); culmen from the cere 12.5–13.5 (13); tarsus 51.5–55.5 (53.3); middle toe without claw 35–39 (36.5 mm.) (6 specimens).

Range.—Haiti and the Dominican Republic; resident chiefly in the forested hills of the interior where locally common.

Type locality.—Haiti.

Accipiter striatus Vieillot, Ois. Amér. Sept., i, 1807, 42, pl. 14 (Santo Domingo).—Riley, Proc. Biol. Soc. Washington, xxiii, 1910, 77 (syn.; crit.).—Stresemann, Journ. für Orn., lxxii, 1924, 436 (crit.; tax.).

Accipiter striatus striatus Wetmore, Proc. Biol. Soc. Washington, xxvii, 1914, 120 (Honduras, Catare, and Miranda, Santo Domingo; Lecoup, near Port au Prince, Haiti; characters; crit.).—Peters, Bull. Mus. Comp. Zool., lxi, 1917, 399 (Bulla).—Swann, Monogr. Birds Prey, i, 1926, 289 (monogr.).—Bond, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928 (1929), 492 (distr.; habits; Haiti).—Danforth, Auk, xlvi, 1929, 361–362 (La Vega).—Moltoni, Atti Soc. Ital. Sci. Nat., lxviii, 1929, 310 (San Juan).—Peters, Check-list Birds of World, i, 1931, 221.—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 108 (Hispaniola; habits; distr.).—Wetmore and Lincoln, Proc. U. S. Nat. Mus., lxxxii, art. 25, 1933, 20 (La Hotte, Tiburon Peninsula; Haiti).—Bond, Birds West Indies, 1936, 414 (West Indies); Check List Birds West Indies, 1940, 21 (West Indies, Hispaniola; locally not uncommon); ed. 2, 1945, 21 (Hispaniola; not uncommon).

Accipiter fuscus striatus Swann, Synopt. List Accip., pt. 1, 1919, 31, footnote (Haiti); Synop. Accip., ed. 2, 1921, 52 (Santo Domingo).

Accipiter striatus striatus Bond, Birds West Indies, 1936, 63, in text (Hispaniola; desc.; distr.).

Sparvius striatus Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 325 (Santo Domingo); Encycl. Méth., iii, 1823, 1265–1266 ("Saint Domingue").

Nisus striatus Hartlaub, Isis, 1847, 609.

Falco viellotinus Shaw, Gen. Zool., vii, pt. 1, 1809, 204 (Santo Domingo; based on *Le Petit Malfini* Sonnini's ed. of Buffon.)

Nisus fuscus (not *Falco fuscus* Gmelin) Cory, Bull. Nuttall Orn. Club, vi, 1881, 154 (Haiti).

Accipiter fringilloides (not of Vigors, 1827) Cory, Birds Haiti and San Domingo.

1885, 120, pl. [16]; Auk, iv, 1887, 41, part (Haiti); List Birds West Indies, rev. ed., 1886, 22, part (Santo Domingo); Birds West Indies, 1889, 199, part (Haiti); Cat. West Indian Birds, 1892, 10, 98, part (Haiti and Santo Domingo); Auk, xii, 1895, 279 (Dominican Republic).—Tippenhaur, Die Insel Haiti, 1892, 319, 322.—Cherrie, Publ. Field Mus. Nat. Hist., orn. ser., 1896, 22 (crit., descr., etc.).—Sharpe, Hand-list, i, 1899, 252, part (Haiti).—Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, lxi, 1909, 357 (Miranda, Santo Domingo).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517, in text, part (Haiti).

Accipter fuscus fringilloides Swann, Synopt. List Accip., 1921, 31, part (Haiti).

ACCIPITER STRIATUS FRINGILLOIDES Vigors

Cuban Sharp-shinned Hawk

Adult male.—Similar to that of *A. s. striatus*, but banding on upper surface of tail somewhat more clearly defined, though not so distinct as in *A. s. velox*; ear coverts and sides of neck brighter (with more of a chestnut tinge), without dark shaft streaks and extending more onto the throat, which lacks the dark shaft streaks; barring on underparts finer and more obsolete; flanks and tibiae narrowly barred with grayish brown; entire abdomen and under tail coverts pure white. Iris dark red; feet pale yellow; bill black, plumbeous at base.

Adult female.—Similar to the male, but more distinctly barred on the breast, and larger.

Immature.—Similar to that of *A. s. velox*, but underparts transversely barred or undulated with hair brown or fuscous; chest with the bars wider, more triangular in shape, and with some admixture of tawny; chin and throat finely streaked with blackish; abdomen nearly pure white; "bill black on the maxilla, bluish at base; cere and bare skin yellowish green; iris pale orange gray; feet yellow" (Gundlach).

Natal down.—Not described.

Adult male.—Wing 157; tail 131; culmen from cere 11, tarsus 50.5; middle toe without claw 33 mm. (1 specimen).

Adult female.—Wing 178–185; tail 149–158; culmen from base 12; tarsus 55–60; middle toe without claw 34–37 mm. (2 specimens).

Range.—Island of Cuba, where local and very scarce (Guantánamo, Guamá, San Diego de los Baños, Bayamo, Pico Turquino near Yara, near Guanabacoa, and Los Palacios, Pinar del Río.

Type locality.—Near Habana, Cuba.

Accipiter fringilloides Vigors, Zool. Journ., iii, 1827, 434 (Cuba).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 255 (San Diego de los Baños, Bayamo, and Hanabana, Cuba; descr.; syn.; crit.).—Albrecht, Journ. für Orn., 1861, 201 (Cuba).—Gundlach, Journ. für Orn., 1861, 322 (Cuba); Rep. Fisico Nat. Cuba, i, 1865–66, 224; Journ. für Orn., 1871, 368 (Cuba; habits); Cat Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 100; Contr. Orn. Cubana, "1876" (=1873), 44; Orn. Cubana, 1895 ed., 25.—Gray, Hand-list, i, 1869, 32, No. 311 (Cuba).—Sclater and Salvin,

Nom. Av. Neotr., 1873, 120 (Cuba).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 135, footnote (Cuba); Hand-list, i, 1899, 252, part (Cuba).—Gurney, List Diurn. Birds Prey, 1884, 42; Cat. Birds Prey, 1894, 30 (crit.).—Cory, List Birds West Indies, rev. ed., 1886, 22, part (Cuba); Auk, 1887, 41, part (Cuba); Birds West Indies, 1889, 199, part (Cuba); Cat. West Indian Birds, 1892, 10, 48, part (Cuba).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 45 (Pico Turquino near Guanabacoa, San Diego de los Baños, and Bayamo, Cuba); No. 9, 1943, 33 (Cuba; rare).—Stresemann, Journ. für Orn., lxxii, 1924, 436 (crit.; tax.).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517, in text, part (Cuba; rare).

Accipiter striatus fringilloides Wetmore, Proc. Biol. Soc. Washington, xxvii, 1914, 120 (Guántanamo, Guamá, San Diego de los Baños, and Bayamo, Cuba; characters).—Swann, Monogr. Birds Prey, i, 1926, 289 (monogr.).—Peters, Check-list Birds of World, i, 1931, 221.—Bond, Birds West Indies, 1936, 63, in text (Cuba; descr.) 414; Check List Birds West Indies, 1940, 21 (Cuba; rare, but widely distributed); ed. 2, 1945, 21 (rare).

Accipiter fuscus fringilloides Swann, Synopt. List Accipt., pt. 1, 1919, 31 part (Cuba); Synop. Accip., pt. 1, 1921, 52 (Cuba).

Nisus fringilloides d'Orbigny, *in* La Sagra's Hist. Nat. Cuba, Aves, 1839, Spanish ed., p. 31; French ed., p. 18.—Poey, Mem. Real. Soc. Econ. Habana, ser. 2, vi, no. 2, 1848, 100.—Lembeye, Aves Cuba, 1850, 128.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 117 (monogr.).

Nisus fuscus var. *fringilloides* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 223.

Nisus fuscus (not *Falco fuscus* Gmelin 1788) Lembeye, Aves Cuba, 1850, 16, pl. 3, fig. 1.—Cabanis, Journ. für Orn., 1854, p. lxxxiii (Cuba).—Gundlach, Journ. für Orn., 1861, 403 (Cuba; crit.).

Accipiter fuscus Brewer, Proc. Boston Soc. Nat. Hist., 1860, 306 (Cuba).

Astur fuscus Lembeye, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cuba).

Accipiter velox (not *Falco velox* Wilson 1812) Gundlach, Orn. Cubana, 1895, 24.—Barbour, Mem. Nuttall Orn. Cl., 6, 1923. 45.

Falco velox Lembeye, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cuba).

(?) *Nisus pensylvanicus* Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

(?) *Falco pensylvanicus* Lembeye, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cuba).

ACCIPITER STRIATUS VENATOR Wetmore

Puerto Rican Sharp-shinned Hawk

Adult male.—Similar to that of *A. s. striatus*, but upperparts darker (dusty neutral gray); dark bands on tail heavier and more distinct (even more distinct than in *A. s. velox*), and only slightly narrower than the pale interspaces; underparts more deeply colored; thighs more rufescent; black shaft streaks on chin and throat more heavily defined. Bill black; cere blackish slate; tarsus and toes dusky gray-green; inside of toes yellowish; claws black. (From dried skin.) Wing 144; tail 122; culmen from cere 10.5; tarsus 44; middle toe without claw 28 mm. (1 specimen).

Adult female.—Not known.

Immature.—Not known.

Range.—Puerto Rico, where rare and apparently confined to a small area in the forested hills above Maricao; range formerly probably more extensive (bones found in cave near Morovis).

Type locality.—Maricao, Puerto Rico.

Accipiter striatus venator WETMORE, Proc. Biol. Soc. Washington, xxvii, 1914, 119 (Cerro Gordo, Maricao, Puerto Rico; coll. U. S. Nat. Mus.); U. S. Dept. Agr. Bull. 326, 1916, 33 (Puerto Rico; food, etc.).—STRUTHERS, Auk, xl, 1923, 472 (near Maricao, Puerto Rico, Nov. 11, Dec. 26).—WETMORE, New York Acad. Sci., ix, pt. 3, 1927, 320 (genl., Puerto Rico).—DANFORTH, Journ. Dept. Agr. Puerto Rico, xv, 1931, 47 (near Maricao; hills east of Mayagüez, Puerto Rico).—PETERS, Check List Birds of World, i, 1931, 221.—BOND, Birds West Indies, 1936, 414; Check List Birds West Indies, 1940, 21 (Puerto Rico; very rare and local); ed. 2, 1945, 21.

Accipiter fuscus venator SWANN, Synop. Accip., pt. 1, 1921, 52 (Puerto Rico).

Accipiter venator STRESEMANN, Journ. für Orn., lxxii, 1924, 436 (crit.; tax.).

Accipiter velox venator SWANN, Monogr. Birds Prey, 1, 1926, 290 (monogr.).

Accipiter striatus WETMORE, Bull. Amer. Mus. Nat. Hist., xlvi, 1922, 306 (bones from cave near Morovis).

Accipiter fringilloides (not of Vigors) PHILLIPS, Verh. 6th Internat. Orn. Kongr., 1929, 517, in text, part (Puerto Rico).

ACCIPITER CHIONOGASTER CHIONOGASTER (Kaup)

GUATEMALAN SHARP-SHINNED HAWK

Adult male.—Whole top of head sooty black; nape sooty black with pure white bases to the feathers, giving this area a somewhat mottled appearance; remainder of upperparts fuscous black, with a slight grayish tinge on the scapulars and tertials, which also have large concealed white spots; upper tail coverts narrowly tipped with white and with concealed white spots toward their bases; tail between hair brown and mouse gray above, pallid neutral gray below, white toward the bases of the inner webs of the outer rectrices, narrowly tipped with white and crossed by five broad bands (distinctly broader than the paler interspaces) of fuscous-black (fuscous below). Cheeks and lower part of ear coverts white, narrowly streaked with black; upper part of ear coverts and sides of neck black like the upper surface; entire underparts, except the tibiae, which are light ochraceous-buff, pure white, with fine blackish shaft streaks on the chin, throat, and upper breast. Wings fuscous above, grayish on the inner secondaries, which are narrowly tipped with white, pallid neutral gray below, white toward the bases of the inner webs, and regularly banded with darker fuscous. Iris blood red; tarsi and toes bright yellow to ocher; cere and eyelids gallstone yellow to olive-green.

Adult female.—Similar to the male, but slightly paler, more slatey and more brownish above, and generally larger; iris said to be orange by Kaup (Proc. Zool. Soc. London, 1851, 41, 42).

Immature.—Entire upperparts fuscous, darkest on the crown, with

narrow cinnamon tips to the feathers, white bases to the feathers of the nape, and concealed white spots on the scapulars and tertials. Underparts white, broadly streaked on the breast with dark, and with fine blackish shaft streaks on the chin, throat, and breast; tibiae light ochraceous-buff with traces of lighter barring; wings as in adult; tail as in adult, but without the whitish tips.

Adult male.—Wing 160–175 (168.1); tail 125–145 (134.1); culmen from cere 10.5–10.8 (10.6); tarsus 48–52 (50.2); middle toe without claw 30–32 (31.1 mm.) (4 specimens).

Adult female.—Wing 198; tail 162; culmen from cere 12.5; tarsus 57; middle toe without claw 37 mm. (1 specimen).

Range.—Honduras (Truxillo), Guatemala, Nicaragua and El Salvador (Los Esesmiles and San José del Sacare), wherever pine forests occur; local in the tropical zone on both coasts, common in the subtropical zone, and on the high mountains of western Guatemala in the temperate zone.

Type locality.—Cobán, Guatemala.

Nisus (seu *Accipiter*) *chionogaster* KAUP, Proc. Zool. Soc. London, 1852, 41 (Cobán, Guatemala; coll. Derby Mus.); Ann. Mag. Nat. Hist., ser. 2, x, 1852, 451 (descr. repr.).

Nisus chionogaster RIDGWAY, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 122 (monogr.; Medio Monte, Vera Paz, Savana Grande, and Volcán de Fuego, Guatemala).

Accipiter chionogaster BONAPARTE, Rev. Mag. Zool., vi, 1854, 538.—SCLATER and SALVIN, Exotic Orn., pt. 2, 1867, 27, pl. 14; Nom. Av. Neotr., 1873, 120, part (Guatemala).—SHARPE, Cat. Birds Brit. Mus., i, 1874, 148, part (Guatemala); Hand-list, i, 1899, 253.—GURNEY, List Diurn. Birds Prey, 1884, 42; Ibis, 1875, 476, in text (meas. of female); Cat. Birds Prey, 1894, 22.—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 583 (Truxillo, Honduras).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1899, 50 (Cobán, Choctum, Lanquin, San Gerónimo, Volcán de Fuego at 8,000 feet, Medio Monte, Savana Grande, and Sierra de las Minas, Guatemala; Truxillo, Honduras; Matagalpa, San Rafael del Norte, Santa Cruz, and Río Coco, Nicaragua).—DEARBORN, Publ. Field Mus. Nat. Hist. No. 125, 1907, 82 (Tecpam, Guatemala, 8,500 feet).—SWANN, Synopt. List Accip., pt. 1, 1919, 35 (Guatemala; Nicaragua).—STRESEMANN, Journ. für Orn., lxxii, 1924, 436 (crit., tax.).—STONE, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras; Cantarranas, and Truxillo).—GRISCOM, Ibis, 1935, 810, in text (Guatemala; Sierra de las Minas; spec.; distr.).

Accipiter chionigaster GRAY, Hand-list, i, 1869, 32, No. 307.

Accipiter chionogaster chionogaster SWANN, Synopt. List. Accip., ed. 2, pt. 1, 1921, 58 (Guatemala; Nicaragua); Monogr. Birds Prey, i, 1926, 317 (monogr.).—GRISCOM, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 152 (distr.; Guatemala).

Accipiter erythronemius chionogaster PETERS, Check-list Birds of World, i, 1931, 221.—VAN ROSSEM, Birds of El Salvador, Publ. Field Mus. Nat. Hist., zool. ser., xxiii, 1938, 108–109 (El Salvador-Los Esesmiles and San José del Sacare; colors of soft parts; habits).

Accipiter erythrocnemis Sclater and Salvin, Ibis, 1859, 218 (Coban, Guatemala; crit.).—Salvin, Ibis, 1861, 140, in text (Vera Paz, Guatemala).—Sclater, Proc. Zool. Soc. London, 1866, 303, part (Guatemala).

(?) *A [ccipiter] salvini* (not *Nisus salvini* Ridgway ?) Salvin and Godman, Ibis, 1892, 328 (Matagalpa, Nicaragua; crit.).

Genus HETEROSPIZIAS Sharpe

Spizigeranus (not *Spizageranus* of Kaup, 1844) Gray, Hand-list, i, 1869, 9. (Type, by monotypy, *Falco meridionalis* Latham.)

Spizageranus (not of Kaup) Agassiz, Nom. Zool. Index Univ., 1848, 1008.

Heterospizias Sharpe, Cat. Birds Brit. Mus., i, 1874, 160. (Type, by monotypy, *Falco meridionalis* Latham.)

Urubitinga Reichenow, Die Vögel, i, 1913, 390, part.

Medium-sized or rather large long-legged, long-winged hawks (wing about 383–470 mm.) with relatively very short toes, scutella of acrotarsium mainly on outer side, only upper fourth of the long tarsus feathered in front, wing tip more than one-third the length of wing, first (outermost) primary longer than eighth, and coloration of adults chiefly cinnamon or cinnamon-rufous, the underparts barred with dusky.

Bill rather small, the culmen (chord) less than one-fourth as long as tarsus though much longer than claw of hallux, the tip of maxilla (unguis) not strongly decurved though well produced, the depth of bill at base of culmen equal to nearly twice its width at same point; gonys nearly straight, ascending terminally, not prominent basally; maxillary tomium slightly incised or concave near base of unguis, slightly convex immediately behind the concavity; anterior outline of cere slightly convex in front of nostril, nearly straight below the nostril, its lower end on same vertical line with middle of nostril; nostril rather large, nearly circular, situated above middle of cere and rather close to its anterior edge. Wing long, rather pointed, the longest primary exceeding distal secondary by more than one-third the length of wing; fourth, or fourth and fifth primaries (from outside) longest, the third very little shorter, the first (outermost) intermediate between eighth and seventh; five outer primaries with inner webs obliquely emarginated or deeply sinuated, the narrowed distal portion straight. Tail less than half as long as wing, its tip usually slightly emarginate. Tarsus about one-fourth as long as wing, more than half as long as tail, rather compressed, feathered for about upper fourth in front, the large scutella of acrotarsium on outer side, those of planta tarsi mostly on inner side; middle toe much less than half as long as tarsus; outer toe slightly longer than inner toe, the end of latter reaching to about middle of penultimate phalanx of middle toe; hallux decidedly shorter than either lateral toe, its claw slightly shorter than the digit and much less than twice as long as that of outer toe.

Plumage [5] *and coloration.*—Loral region with numerous very fine or slender antrorse bristles, the anterior and especially the uppermost ones strongly recurved; chin and malar apex also with long, but nearly straight antrorse bristles; plumage in general full and rather soft, the feathers of pileum cuneate and acuminate, those of nape and hindneck broadly cuneate and acuminate, those of other upperparts with tips broadly rounded and distinctly outlined, those of underparts similar but softer and more blended; plumage of thighs moderately developed. Adults with head and underparts cinnamon or light cinnamon-rufous, the latter barred with dusky, the pileum streaked with the same; wings mostly brighter cinnamon-rufous, the remiges brownish black distally; tail blackish brown narrowly tipped with grayish; crossed near middle by a band of dull grayish white, the basal portion mottled with light rufous. Young with head, neck, and breast pale ochraceous to buffy whitish, the first streaked, the last longitudinally spotted with dusky brown, the tail dusky transversely mottled or narrowly and irregularly barred with dull grayish.

Range.—Continental Tropical America, from southern Mexico to Paraguay and Argentina. (Monotypic.)

KEY TO THE RACES OF HETEROSPIZIAS MERIDIONALIS

a. Wing under 420 mm. (Panama to Paraguay and southeastern Brazil). **H. m. meridionalis** (p. 205)

aa. Wing over 420 mm. (Argentina)..... **H. m. rufulus** (extralimital) [6]

HETEROSPIZIAS MERIDIONALIS MERIDIONALIS (Latham)

RUFOUS-HEADED HAWK

Adults (fourth year; sexes alike except in size).—Forehead, crown, occiput, and nape orange-cinnamon, the feathers with blackish shaft streaks, the streaks becoming broader and more conspicuous on the

[5] According to Nitzsch, the pterylosis of *Heterospizias* resembles that of *Buteo*, but the external branch of the pectoral stem of the inferior tract is only half free, as in *Haliaeetus*. Remiges 25.

[6] **Heterospizias meridionalis rufulus** (Vieillot).—*Circus rufulus* Vieillot, Nouv. Dict. Hist. Nat., iv. 1816, 466 (based on *Gavilan del Estero avanelado* Azara; near city of Corrientes).—*Falco rutilans* Temminck and Laugier, Rec. Planches Col., i, livr. 5, 1824, pl. 24, part.—*Buteo rutilans* d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1837, 104, part.—*Asturina rutilans* Burmeister, Journ. für Orn., 1860, 242 (Tucumán).—*Urubitinga meridionalis* Sclater and Salvin, Proc. Zool. Soc. London, 1869, 634 (Buenos Aires); Durnford, Ibis, 1880, 362 (Salta).—*Heterospizias meridionalis* Sharpe, Cat. Birds Brit. Mus., i, 1874, 160, part; Hartert and Venturi, Nov. Zool., xvi, 1909, 238 (habits); Dabbene, Orn. Arg., 1910, 243 (distr.); Brabourne and Chubb, Birds South Amer., i, 1912, 66, part.—*Heterospizias meridionalis australis* Swann, Auk, xxxviii, 1921, 359; Monogr. Birds Prey, i, pt. 5, 1926, 344; Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 114; Peters, Check-list Birds of World, i, 1931, 226.—*Heterospizias meridionalis rufulus* Steullet and Deautier, Cat. Sist. Aves. Argentina, i, pt. 2, 1936, 409 (syn., distr.).

occiput and nape; scapulars, interscapulars, and upper back dull hair brown to chaetura drab, the feathers edged with avellaneous or vinaceous-buff, the edgings giving an ashy appearance to the scapulars, interscapulars, and upper back; the feathers of the lower back and rump and the upper tail coverts fuscous to dark chaetura drab very narrowly tipped with army brown; lesser upper wing coverts orange-cinnamon, the feathers with concealed median areas of grayish fuscous; median upper wing coverts fuscous washed with grayish and edged with pale cinnamon-orange; greater upper wing coverts fuscous, the outer (primary) coverts tipped broadly with orange-cinnamon;

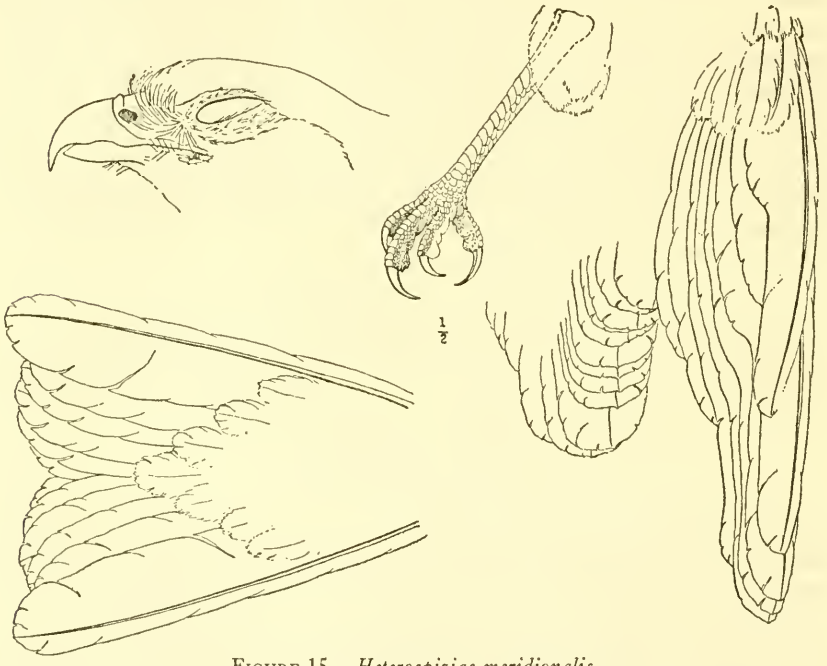

FIGURE 15.—*Heterospizias meridionalis.*

the inner (secondary) coverts narrowly tipped and margined with dull vinaceous-buff; primaries and outer secondaries very broadly tipped with black (in the outer primaries the black area half the length of the feather) and bright orange-cinnamon (paling to pale cinnamon-pink internally on the outer primaries) in the proximal portion, the orange-cinnamon areas on the inner webs barred with wavy narrow, but widely spaced, blackish bands; the inner secondaries with the orange-cinnamon replaced by dull hair brown obscurely barred on both webs; tail black, tipped with white and crossed by a broad white bar, the bar somewhat nearer the tip than the base of the rectrices, and irregularly mottled with whitish in the basal black area; sides of the head light buff to pale ochraceous-buff, the feathers with hair

brown shaft streaks; chin pale avellaneous with very narrow black shaft streaks, the throat pinkish cinnamon with dusky grayish hair brown shaft streaks; breast, abdomen, sides, flanks, and under tail coverts pinkish cinnamon to cinnamon abundantly and narrowly barred with fuscous, the ground color brightest on the lower and middle abdomen, the bars heaviest and darkest on upper abdomen, sides, and under tail coverts; thighs orange-cinnamon barred with black; axillars, lesser and median under wing coverts orange-cinnamon faintly to distinctly barred with narrow dark fuscous bands; the greater under wing coverts cinnamon barred with fuscous; bill blackish, paler on the mandible, darker on maxilla, cere light yellow; iris pale reddish yellow to light warm brown; tarsus and toes light orange yellow.

Subadult (third year; sexes alike).—Similar to adults, but without the ashy gray cast on the upper back, interscapulars, and scapulars.

Immature (second year; sexes alike).—Forehead and superciliary stripe light buff to whitish buff; crown, occiput, nape, and entire back including scapulars and upper tail coverts dark fuscous to fuscous-black, the nape mottled with white from the exposed bases of the feathers; lesser upper wing coverts mottled with cinnamon and dark fuscous and tipped broadly with fuscous; median and greater upper wing coverts fuscous; less mottled with cinnamon than the lesser ones; remiges as in adults, but with the orange areas paler, more whitish or pale cinnamon-pink on the inner webs of the outer primaries; rectrices as in adult, but with the pale area much broader and crossed by several wavy blackish bands and mottled with cinnamon and white; cheeks and auriculars whitish buff with fuscous shaft streaks; chin and upper throat whitish or whitish buff with black shaft streaks; lower throat, breast, and abdomen whitish very heavily marked with dark fuscous, the latter being the dark terminal areas (half or more of the whole feather) of individual feathers; under tail coverts pale cinnamon-buff barred with dark fuscous; thighs mottled with fuscous and dull ferruginous to deep cinnamon; under wing coverts pale cinnamon-buff to cinnamon narrowly barred with fuscous-black.

Juvenal (sexes alike).—Similar to the immature plumage, but with less cinnamon in the remiges, wing coverts, and thighs; the lesser upper wing coverts as in immature, the median and greater ones plain fuscous or fuscous-black; the cinnamon areas of the inner webs of the outer primaries almost white; thighs fuscous obscurely mottled with Natal brown.

Natal down.—Not seen; no published descriptions.

Adult male.—Wing 383–409 (400); tail 196–207 (200.5); culmen from cere 23.5–26 (24.6); tarsus 90–113 (104.2); middle toe without claw 41–44 (42.5 mm.) (4 specimens).

Adult female.—Wing 412–415 (413.5); tail 197–214 (205.5); culmen from cere 23–24 (23.5); tarsus 100–106 (103); middle toe without claw 43–44 (43.5 mm.) (2 specimens).

Range.—Boggy and swampy savannahs in the lowlands from Panama (Santa Fé de Veragua) south through the Santa Marta district of Colombia (Mamatoco, Bonda, Fundación, Río Frío, the Ciénaga Grande and lower Magdalena River; unknown from the interior of Colombia); Venezuela and the Guianas to western Ecuador (Vinces; Babahoyo) and northwestern Peru (Pericó; Guajango; Lambadero); Bolivia (Provinces of Chiquitos and Moxos; Caiza; Tatarenda); Paraguay (Sapucay; Chaco; Puerto Pinasco), and to southeastern Brazil (Rio Grande do Sul).[7]

Recorded, but without substantiating evidence, from Costa Rica and Mexico.

Type locality.—Cayenne.

Falco meridionalis Latham, Index Orn., i, 1790, 36 (Cayenne; based on *Rufous-headed Falcon* Latham, Synop. Suppl., p. 33, No. 107).—Daudin, Traité d'Orn., ii, 1800, 112 (Cayenne).—Shaw, Gen. Zool., vii, pt. 1, 1809, 178 (Cayenne).—Vieillot, Nouv. Dict. Hist. Nat., xxiii, 1818, 451 (Guiana).

Asturina meridionalis Kaup, Isis, 1847, 204 (monogr.), 367, 375, 379; *in* Jardine's Contr. Orn., 1850; 681.

Morphnus meridionalis Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 21 (South America; Mexico).

Urubitinga meridionalis Bonaparte, Consp. Gen. Av., i, 1850, 30.—Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Mexiana Island, Brazil); 1869, 252 (Plains of Valencia, Venezuela); Nom. Av. Neotr., 1873, 119 part; Proc. Zool. Soc. London, 1879, 637 (prov. Chiquitas and Moxos, Bolivia).—Pelzeln, Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 394.—Wyatt, Ibis, 1871, 117 (Puerto Nacionál, Colombia), 382 (near Aguachica, Colombia).—Taczanowski, Proc. Zool. Soc. London, 1879, 241 (Guajango, Peru).—Reichenow, Die Vögel, i, 1913, 391.

Urubitinga (*Spizigeranus*) *meridionalis* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 63 (South America).

Hypomorphnus meridionalis Bonaparte, Rev. Mag. Zool., vi, 1854, 537.

Buteogallus meridionalis Sclater, Proc. Zool. Soc. London, 1860, 288 (Babahoyo, w. Ecuador; habits; food; color of unfeathered parts).—Berlepsch, Journ. für Orn., 1884, 319 (Aguachica, Colombia).

Buteo meridionalis Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 17 (monogr.); No. 36, livr. 10, 1873, 110.—Gray, Hand-list, i, 1869, 9, No. 76.

Heterospizias meridionalis Sharpe, Cat. Birds Brit. Mus., i, 1874, 160 (Merida, Venezuela; Mexiana Island, Brazil; Mexico), 457 (Bolivia); Hand-list, i, 1899, 254.—Gurney, Ibis, 1876, 66; List Diurn. Birds Prey, 1884, 78.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 139 (monogr; Colombia; Pará, Brazil).—Taczanowski, Orn. de Pérou, i, 1884, 110.—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Babahoyo, w. Ecuador); Journ. für Orn., 1887, 123 (Paraguay); Nov. Zool., xv, 1908, 292 (Cayenne).—Salvin, Ibis,

[7] Birds from western Ecuador and northwestern Peru are tentatively placed in this race, but seem to be close to the larger, southern (Argentinian) form *rufulus*.

1886, 74 (Brit. Guiana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1888, 126 (Costa Rica).—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 145 (Chapada, Matto Grosso, Brazil; crit.).—Gurney, Cat. Birds Prey, 1894, 25.—Koenigswald, Journ. für Orn., 1896, 384 (São Paulo, s. Brazil).—Salvadori, Boll. Mus. Zool., Torino, xii, 1897, 29, part (Caiza, s. Bolivia); xv, 1900, 13 (Urucum, Matto Grosso, Brazil).—Ihering, Rev. Mus. Paulista, iii, 1899, 351 (São Paulo); iv, 1900, 162 (Cantogallo, São Paulo), 270 (descr. eggs); vi, 1904, 337 (Paraguay).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 29 (Vinces, w. Ecuador).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 87 (Mexico; Costa Rica; Santa Fé de Veragua, Panamá; Colombia; Ecuador; Guiana; Venezuela; Amazonia; Brazil; Bolivia).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 113 (Altagracia, Caicara, and Quiribana de Caicara, Venezuela; color of unfeathered parts).—Lönnberg, Ibis, 1903, 465 (Tatarenda, Bolivia).—Hellmayr, Abh. Bay. Akad. Wiss., Kl. II, xxii, No. 3, 1905, 568 (crit.); Nov. Zool., xxviii, 1921, 185 (crit. d'Orbigny and Lafresnaye).—Hagmann, Journ. für Ornith., 1906, 108 (Mexiana I.; descr. eggs); Zool. Jahrb., 1907, 20 (Mexiana I.).—Ihering and Ihering, Av. Brazil, 1907, 88 (Rio Grande do Sul, Rio de Janeiro, Bahia, São Paulo, Matto Grosso, Rio Branco, Pará, and Minas Gerais).—Chubb, Ibis, 1910, 72 (Sapucay, Paraguay; color of unfeathered parts).—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 90 (Rio San Francisco, etc., ne. Brazil).—Brabourne and Chubb, Birds South Amer., i, 1912, 66, part (Colombia to se. Brazil and Paraguay).—Bertoni, Fauna Paraguaya, 1913, 42.—Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 343 (Orinoco region; color of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 229 (habits).—Bangs and Noble, Auk, xxxv, 1918, 444 (Perico, Peru).—Swann, Synopt. List Accip., pt. 1, 1919, 40, part (Colombia to se. Brazil and Paraguay).—Menegaux, Rev. Franc. Orn., ix, 1925, 279 (Chaco, Argentina).—Snethlage, Journ. für Orn., lxxvi, 1928, 572, 675 (eggs; breeding habits, ne. Brazil).—Young, Ibis, 1929, 7 (habits; coasts Brit. Guiana).—Wetmore, Auk, lii, 1935, 329, in text (Venezuela, Los Tamarindos; pre-Columbian bones).

Heterospizias meridionales Snethlage, Journ. für Orn., lxxvi, 1928, 553 (breeding season; var. South American countries).

Heterospizias meridionalis meridionalis Swann, Auk, xxxviii, 1921, 359; Synop. Accip., pt. 2, 1922, 66 (Panama to se. Brazil, Paraguay, and Bolivia).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 151 (Mamatoco, Bonda, and Fundación, Santa Marta, Colombia).—Swann, Monogr. Birds of Prey, i 1926, 342 (monogr.).—Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 113 (Puerto Pinasco, Paraguay.)—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 459 (Piauhy and Bahia, Brazil; crit.).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 106 (Matto Grosso, Brazil; distr.).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 366 (Río Frío (near Santa Marta), Magdalena, Colombia.)—Peters, Check-list Birds of World, i, 1931, 226.—Belcher and Smooker, Ibis, 1934, 590 (Trinidad; rare resident; eggs).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, lxxxvi, 1934, 371 (Matto Grosso, Brazil; spec.; colors of soft parts).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (Panama; Savannas, Chiriquí and Veraguas, Pacific slope).—Pinto, Rev. Mus. Paulista, xxii, 1938, 68 (Brazil; distr.).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 184 (Venezuela; near Ortiz and El Sombrero).—Dugand, Rev. Acad. Colomb., iii, 1940, 218 (very common, Magdalena-Caribbean part of Colombia).—Griscom and Green-

WAY, Bull. Mus. Comp. Zool., lxxxviii, 1941, 112 (Lower Amazonia; Mexiana Island; Marajo Island; Rio Xingu; Victoria; Santarém).

Falco rutilans LICHTENSTEIN, Verz. Doubl., 1823, 60 (Brazil; based on "*Buse des Savannes noyées rousse* Azar. 11. Temm. et Lange. Pl. col. 25").—TEMMINCK, Planches Col., i, 1824, pl. 25 and text.—MAXIMILIAN, Beitr. Naturg. Bras., i, 1830, 223 (Parahyba, St. Bento, Rio Barganza, Lagoa Feia, and Villa de St. Salvador).

Circus rutilans STEPHENS, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 43 (South America).

Buteo rutilans LESSON, Man. Orn., i, 1828, 104; Traité d'Orn., 1831, 79.—D'ORBIGNY, Voy. Amér. Mérid., iv, pt. 3, 1839, 104, part (Paraguay; habits).—D'ORBIGNY and LAFRESNAYE, Synop. Avium, 1839, 6, part (Chiquitos and Moxos, Bolivia).—PUCHERÁN, Rev. Mag. Zool., 1850, 213 (crit.).—HARTLAUB, Journ. für Orn., 1855, 419 (crit.).

Hypomorphnus rutilans TSCHUDI, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 264 (Peru); Fauna Peruana, Aves, 1844–46, 17, 84.—CABANIS, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 740.

Asturina rutilans BURMEISTER, Syst. Übers. Th. Bras., ii, 1856, 80.

Aquila buson (not *Falco buson* Daudin, 1800) SPIX, Av. Bras., i, 1824, 6 (Rio Amazon).

Subfamily BUTEONINAE: Round-winged Hawks and Eagles

=Buteoninae COUES, Key North Amer. Birds, ed. 5, 1903, 678.—HARTERT, Vög. pal. Fauna, ii, 1913, 1087.—PETERS, Check-list Birds of World, i, 1931, 227.

=Buteones RIDGWAY, Proc. Boston Soc. Nat. Hist., 1873, 63; Bull. U. S. Geol. Surv. Terr., ser. 2, No. 4, 1875, 4 (*Leucopternis*, *Asturina*, *Kaupifalco*, *Poliornis*, *Rupornis*, *Buteo*, and *Geranoaetus*).

<Milvinae HARTERT, Vög. pal. Fauna, ii, 1913, 1087 (includes *Milvus*, *Haliastur*, and *Haliaetus*!)

<Harpyidae BURMEISTER, Syst. Übers, Th. Bras., ii, 1856, 57 (*Thrasaetus*, *Morphnus*, and *Spizaetus*).

<Aquilinae SUNDEVALL, Öfv. Svensk. Vet.-Akad. Forh., No. 2, 1874, 35 (*Spizaetus*, *Lophaetus*, *Pseudaetus*, and *Aquila*).

<Aquilae RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 70 (*Aquila*, *Spizaetus*, *Spiziastur*, *Morphnus*, *Thrasaetus*, and *Harpyhaliaetus*).

<Morphni RIDGWAY, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 147 (*Morphnus* and *Thrasaetus*).

<Thrasaetinae PYCRAFT, Proc. Zool. Soc. London, 1902, 315 (*Morphnus* and *Thrasaetus*).

<Archibuteones RIDGWAY, Proc. Boston Soc. Nat. Hist., 1873, 72 (*Archibuteo* only).

Coracoids not overlapping at sternum; nasal septum not completely ossified; upper portion of anterior face of tarsometatarsus with no bony ring; outer (fourth) toe not reversible; claws graduated in size from that of the hallux (largest) to that of the outer (fourth) toe (smallest), not contracted to their under surface; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; cervical vertebrae 13 to 14; caeca minute; palate desmognathous; sides of head densely feathered except around the eyes, which are overhung by a bare superciliary plate of the lachrymal and have a

bare space beneath the lower lid, the lores sparsely feathered; bill without tooth or notch, but usually festooned, relatively short and deep, but less so than in the Accipitrinae; nostrils not circular or with a central tubercle; wings and tail variable but tail always much shorter than wing; tarsus shorter than tibia, generally scutellate before and behind, sometimes feathered to the toes.

Range.—Cosmopolitan; contains 29 genera, of which 15 occur in North and Middle America.

Genus BUTEO Lacépède

Buteo Lacépède, Tabl. Ois., 1799, 4. (Type, by tautonymy, *Falco buteo* Linnaeus.)

(?) *Limnaetus* Bowdich, Excursions in Madeira, 1825, 56. (Type, by monotypy, the "Manta," said to be *Falco buteo* Linnaeus.)

Craxirex Gould, Zool. Voy. *Beagle*, iii, pt. 6, 1839, 22. (Type, as designated by Gray, 1840, *Polyborus galapagoensis* Gould.)

Cracirex (emendation) Newton, Encycl. Brit., ed. 9, iii, 1875, 747.

Butaëtos (not Butaetes Lesson, 1830) Moeschler, Naumannia, iii, 1853, 296 (ex J. F. Naumann, Naumannia, iii, 1853, 116=nomen nudum). (Type, by monotypy, *Buteo leucurus* Naumann.)

Butaquila Hodgson *in* Gray's Zool. Misc., 1844, 81. (Type, by original designation, *B. leucocephala* Hodgson=*Falco ferox* S. G. Gmelin.).—Gray, Cat. Mam. and Birds Nepal and Thibet, 1846, 39, in synonymy only (ex Hodgson, *in* Gray's Zool. Misc., 1844, 41=nomen nudum). (Type, by original designation "*Butaquila leucocephala*"[=*Buteo ferox*], No. 859, Hodgson's drawings in British Museum.)

Tachytriorchis Kaup, Classif. Säugeth. und Vögel, 1844, 123. (Type by monotypy, *Buteo pterocles* Temminck=*B. albicaudatus* Vieillot.)

Tachyptriorchis (emendation) Reichenbach, Av. Syst. Nat. Vög., 1850, pl. 95.

Poecilopternis Kaup, Isis, 1847, 84 (bis), 330. (Type, by monotypy, *Buteo erythronotus* King.)

Paecilopternis (emendation) Gray, Gen. Birds, i, 1849, 11.

Limnosalis Württemberg, Naumannia, 1857, 432. (Type, by monotypy, "*Buteo lagopus* Jard." [that is, *Buteo longipes* Jerdon] *B. rufinus* Rupp[el]=*Accipiter ferox* Gmelin.)

Buteola "DuBus" Bonaparte, Compt. Rend., xli, 1855, 651. (Type, by monotypy, *Buteo brachyurus* Vieillot.)

Onychotes Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142. (Type, by original designation, *O. gruberi* Ridgway=*Buteo solitarius* Peale.)

Circobuteo Jerdon, Ibis, 1871, 340 (ex "Hodgson MS"). (Type, by monotypy, *Buteo plumipes* Hodgson.)

Dromolestes Sundevall, Öfv. Svensk. Vet.-Akad. Förh., xxxi, No. 2, 1875 (1874), 27. (To replace *Craxirex* Gould, on grounds of purism.)

Pterolestes Sundevall, Öfv. Svensk. Vet.-Akad. Förh., xxxi, No. 2, 1875 (1874), 27. (Type, by priority in original designation, *Falco jakal* Daudin.)

Archibuteo Brehm, Isis, xxi, 1828, 1269. (Nomen nudum; see Oberholser, Auk, xxxvi, 1919, 282.)

Archibuteo Brehm, Handb. Naturg. Vög. Deutschl., 1831, 38 (earliest tenable citation; see Oberholser, Auk, xxxvi, 1919, 282). (Type, *A. planiceps* Brehm and *A. alticeps* Brehm=*A. lagopus* Brünnich.)

Archebutio ("emendation") Brooks, Stray Feathers, iv, 1876, 272.

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Archibutes (emendation) AGASSIZ, Nomencl. Zool., Aves, 1842, 6.

Triorchis (not *Triorches* Leach, 1816) KAUP, Skizz. Entew.-Gesch. Eur. Thierw. 1829, 84, 190. (Type, by monotypy, *Falco lagopus* Brünnich.)

Triorches (emendation; not of Leach, 1816) BLASIUS, List Birds Europe, 1862, 4.

Butaetes LESSON, Traité d'Orn., 1830, 83. (Type, by monotypy, *B. buteo* Lesson= *Falco lagopus* Brünnich.)

Busaëtes (emendation) LESSON, Traité d'Orn., 1831, 652.

Cerchne MORRIS, *in* N. Wood's Naturalist, ii, 1837, 123. (Type, *C. pennipes* Morris=*Falco lagopus* Brünnich and *C. buteo*=*Falco buteo* Linnaeus.)

Lagopus (lapsus for *Archibuteo;* not of Brisson, 1760) FRASER, Proc. Zool. Soc. London, 1844, 37.

Hemiætus GRAY, Cat. Gen. and Subgen. Birds, 1855, 3 (ex Hodgson, *in* Gray's Zool. Misc., 1844, 81=nomen nudum). (Type, by original designation, *Butaquila strophiata* Hodgson.)

Hemiaetos (emendation) GRAY, Cat. Gen. and Subgen. Birds, 1885, 134.

Hemiaëtos (emendation) GRAY, Cat. Mam. and Birds Nepal and Thibet, 1846, 39, in synonymy of "*Archibuteo strophiatus.*"

Brewsteria MAYNARD, Birds Eastern North Amer., ed. 2, pt. 40, 1896, 691. (Type, by original designation, *Falco ferrugineus* Lichtenstein.)

Rupornis KAUP, Classif. Säugeth. und Vögel, 1844, 120. (Type, by monotypy, *Falco magnirostris* Gmelin.)

Rypornis (emendation) AGASSIZ, Nom. Zool., 1845, Aves add., 20.

Rhypornis (emendation) AGASSIZ, Index Zool., 1846, 326, 328.

Potamolegus BERTONI, Aves Nuevas Paraguay, 1901, 158. (Types, *P. superciliaris* Bertoni=*Asturina nattereri* Sclater and Salvin, and *P. s. magniplumis* Bertoni=*Asturina pucherani* Sclater and Salvin; see Peters, Check-List Birds of World, i, 1931, 228, in this connection.)

Coryornis RIDGWAY, Auk, xlii, 1925, 585. (Type, by original designation and monotypy, *Rupornis ridgwayi* CORY.)

Geranoaetus KAUP, Class. Säugeth. und Vögel, 1844, 122. (Type, by monotypy *Falco aguia* Temminck=*Spizaetus melanoleucus* Vieillot.)

Praedo (not of Nelson, 1912) KLEINSCHMIDT, Falco, xiii, 1917, 10. (Type, by original designation, Mäusebussard=*Falco buteo* Linnaeus.)

Percnohierax RIDGWAY, Smiths. Misc. Coll., lxxii, No. 4, 1920, 2. (Type, by original designation, *Falco leucorrhous* Quoy and Gaimard.)

Heteroaëtus KAUP, Mus. Senckenb., iii, Heft 3, 1845, 261. (New name for *Geranoaetus.*)

Small to large Buteones (wing 230–500 mm.) with longest primary exceeding distal secondary by from less than one-third to more than one-third the length of the wing; tarsus strong, short, scaled, less than twice to more than twice the length of the middle toe without claw and feathered for a varying distance in front; nostrils oval; obliquely horizontal; and with from three to five outer primaries incised on their inner webs. The genus *Buteo* is such a composite (that is, is so variable within its included subgenera) that any description of the genus as a whole would be largely a matter of exceptions in one or another subgenus of all the generic characters. Therefore, beyond the above generalities, it seems better to describe the subgenera independently rather than to attempt a composite description, which would be rendered only confused by the number of contradictions and excep-

tions. One subgenus, *Geranoaetus*, is extralimital and may be disposed of more briefly than the others.

Plumage and coloration.—Plumage compact, full; primaries and rectrices moderately rigid; underparts white, plain or narrowly barred with dark gray in adults; upperparts dark; young different from adults.

Range.—Nearly cosmopolitan, but absent in the Indo-Malayan and Australian regions and in Oceania. (Many species, about 12 in North and Middle America.)

There is much variation in external characters among the numerous species of this genus, as here defined, and the group defies subdivision; I am unable to see valid reasons for the recognition of *Buteola* and *Tachytriorchis* as genera if all the remaining species are left in *Buteo*. Scarcely any two species of the group are more unlike structurally than *B. albicaudatus* and *B. albonotatus*, both of which belong to the "genus" *Tachytriorchis* according to Sharpe. Similarly the "genus" *Coryornis* cannot be maintained if *B. lineatus* be left in *Buteo* (cannot be regarded even as a subgenus). Also *Brewsteria* and *Butaetes* both merge with *Buteo*, and so on.[8] In order to satisfy all doubts on this score illustrations and descriptions are here included of these "subgenera."

KEY TO THE SPECIES AND SUBSPECIES OF BUTEO[9]

a. Tarsi feathered to toes.

b. Bill at base measuring 42–48 mm., from angle to angle of gape (western North America)----------("subgenus **Brewsteria**")

c. Entire bird fuscous-brown, exept tail------**B. regalis**, dark phase (p. 226)

cc. Underparts whitish.

d. Thighs heavily barred with rufescent; abdomen more or less so.

Buteo regalis, light phase, ad. (p. 226)

dd. Thighs pure white like rest of underparts-----**B. regalis**, juv. (p. 227)

bb. Bill at base measuring 33–38 mm. from angle to angle of gape.

("subgenus **Butaetes**")

c. Entire bird fuscous-brown; tail tipped and obscurely banded with white (northern North America south to Southern United States).

B. lagopus s.-johannis, dark phase (p. 327)

cc. Underparts whitish marked with dark brown.

d. Abdomen crossed by a very broad unbroken blackish band; terminal half of tail unbarred except for white tip.

e. Size smaller, wing under 430 mm.

B. lagopus s.-johannis, juv. (p. 328)

[8] Extralimital subgenus GERANOAETUS Kaup.—Size much larger than *Buteo*, wings 450–575 mm.; tail graduated and proportionately shorter, only about hal. as long as wing; the five outer primaries emarginate on their inner webs, the third and fourth (from the outside) longest, the first between the sixth and the seventh (from the outside) in length; nostrils obliquely horizontal; feet as in typical *Buteo*.

Range.—South America. (Monotypic.)

[9] This key includes only forms known to occur in the regional limits involved in this work plus a few extralimital forms of closely adjacent areas that may be expected to occur at times.

ee. Size larger, wing over 430 mm. (Siberia; nw. Alaska).
B. lagopus kamtschatkensis, juv. (p. 336)

dd. Abdomen much marked with blackish, but marks not forming an unbroken band; terminal half of tail with two or three grayish white bars.

e. Size smaller, wing under 430 mm.
B. lagopus s.-johannis, ad., light phase (p. 325)

ee. Size larger, wing over 430 mm. (Siberia; nw. Alaska).
B. lagopus kamtschatkensis, ad. (p. 336)

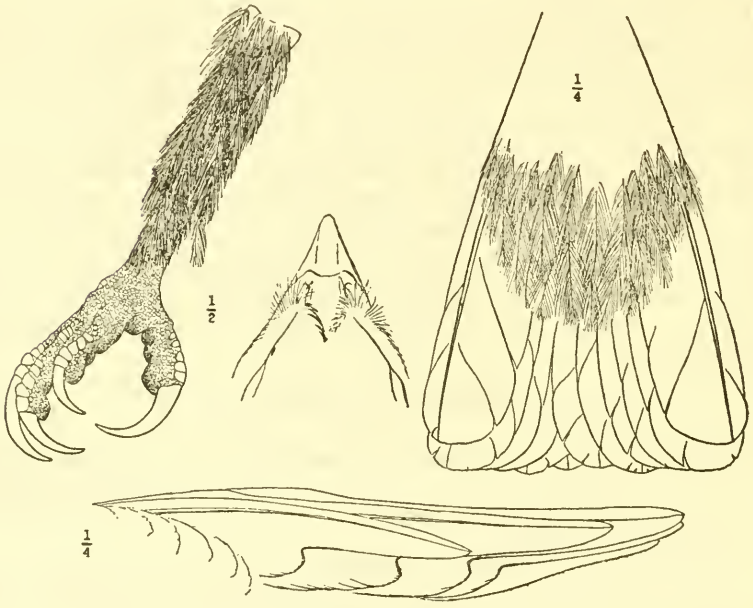

FIGURE 16.—*Buteo* (*Brewsteria*) *regalis*.

aa. Tarsi unfeathered for greatest (lower) part.

b. Longest primary exceeding distal secondary by much less than one-third length of wing.

c. Plumage generally solid brown, not blue-gray above.

d. Pale bands on rectrices very narrow.

e. Breast gray; abdomen white barred with rufescent (Hispaniola).
B. ridgwayi, ad. (p. 293)

ee. Breast white streaked with gray; abdomen white streaked with rufescent (Hispaniola)----------**B. ridgwayi**, juv. (p. 294)

dd. Pale bands on the rectrices very broad (more than 12 mm.).

e. Head and upperparts very light, pale drab-gray to neutral gray.

f. Breast uniform gray (eastern Panama).
B. magnirostris insidiatrix, ad. (p. 350)

ff. Breast buffy white streaked with dusky (eastern Panama).
B. magnirostris insidiatrix, juv. (p. 350)

ee. Head and upperparts darker, always with a brownish color generally.

f. Pale interspaces of rectrices without a trace of rufous.

g. Underparts whitish streaked with reddish brown.

h. Size smaller, wing, ♂ not over 200 mm., ♀ not over 225 mm. (Cozumel Island)--**B. magnirostris gracilis**, juv. (p. 334)

hh. Size larger; wing, ♂ over 215 mm., ♀ 230 mm. or over.

i. Upperparts dark; fuscous to olive-brown.

j. Ground color of underparts definitely tinged with buffy (eastern and southern Mexico).

B. magnirostris griseocauda, juv. (p. 339)

jj. Ground color of underparts whitish, only slightly tinged with buffy.

k. Pectoral streaks darker—fuscous (Colima to northern Oaxaca)---**B. magnirostris xantusi**, juv. (p. 341)

kk. Pectoral streaks paler—dark sepia (Oaxaca to northern Chiapas)--**B. magnirostris petersi**, juv. (p. 343)

ii. Upperparts pale; drab to pale hair brown (Yucatán to northern Brit. Honduras).

B. magnirostris conspectus, juv. (p. 342)

gg. Underparts not whitish streaked with reddish brown, but abdomen and flanks barred with reddish brown.

h. Size smaller; wing, ♂ not over 200 mm., ♀ not over 225 mm. (Cozumel Island)--**B. magnirostris gracilis**, ad. (p. 344)

hh. Size larger; wing, ♂ over 215 mm., ♀ 230 mm. or over.

i. Upperparts brownish with very little grayish wash.

j. Ground color of underparts distinctly tinged with buffy.

k. Crown and nape dark brownish (eastern and southern Mexico)--**B. magnirostris griseocauda**, ad. (p. 338)

kk. Crown and nape blackish (Bay Islands, Honduras).

B. magnirostris sinus-honduri, ad. (p. 347)

jj. Ground color of underparts whitish, only slightly tinged with buffy.

k. Abdominal bars darker—Saccardo's umber (Colima to northern Oaxaca).

B. magnirostris xantusi, ad. (p. 341)

kk. Abdominal bars paler—Sayal brown (Oaxaca to northern Chiapas).

B. magnirostris petersi, ad. (p. 343)

ii. Upperparts decidedly grayish brown (Yucatán to northern Brit. Honduras).

B. magnirostris conspectus, ad. (p. 342)

ff. Pale interspaces of rectrices with some rufous.

g. Pale interspaces of rectrices entirely rufous.

h. Abdomen barred with rufous.

i. Breast feathers with two incomplete white bars, producing a spotted appearance (Pearl Islands).

B. magnirostris alius, ad. (p. 350)

ii. Breast feathers without any white bars (Pacific slope Costa Rica to eastern Panama).

B. magnirostris petulans, ad. (p. 348)

hh. Abdomen streaked with rufous.

B. magnirostris petulans, juv. (p. 348)[10]

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[10] Juvenal plumage of *Buteo m. alius* not known, but probably differs from that of *petulans* chiefly in having the rufous interspaces on the rectrices paler.

gg. Pale interspaces on rectrices not wholly rufous, but gray with a rufous wash.

h. Abdomen barred with rufous.

i. Crown slightly grayer than the back; size larger, wings, ♂ over 220 mm. ♀ over 230 mm. (eastern Honduras to Chiriquí)_____**B. magnirostris argutus**, ad. (p. 346)

ii. Crown not grayer than the back; size smaller, wings, ♂ not over 200 mm., ♀ generally under 230 mm. (Guatemala; El Salvador).

B. magnirostris direptor, ad. (p. 345)

hh. Abdomen streaked with rufous.

i. Size larger, wings, ♂ over 220 mm., ♀ over 230 mm. (eastern Honduras to Chiriquí).

B. magnirostris argutus, juv. (p. 346)

ii. Size smaller, wings, ♂ 220 mm. or less, ♀ 220–235 mm. (Guatemala, El Salvador).

B. magnirostris direptor, juv. (p. 345)

cc. Dorsal plumage blue-gray (adults) or brownish with pale markings (juv.). ("subgenus **Asturina**").

d. Underparts gray, barred with white; upperparts gray (adults).

e. Upperparts definitely, if not very strongly, barred with whitish.

f. The pale bars above distinctly obvious at first glance; white interspaces below usually broader than dark bars (South America).

B. nitidus nitidus, ad. (extralimital) [11]

ff. Pale bars above not distinctly obvious at first glance; less contrasting with darker ones; white interspaces on underparts usually equal to or slightly narrower than dark bars (southwestern Costa Rica; Panama)____**B. nitidus blakei**, ad. (p. 367)

ee. Upperparts not definitely, if at all, barred.

f. Tail with one complete white bar, second bar usually much reduced to a series of small spots (British Honduras to northwestern Costa Rica)_____**B. nitidus micrus**, ad. (p. 364)

ff. Tail with two more-or-less complete white bars, the first complete; the second (more basal) often complete, but if not, always at least a line of spots large enough to give the appearance of a fairly definite bar.

g. Size larger, wings, ♂ over 250 mm., ♀ over 270 mm. (southwestern United States, northwestern Mexico).

B. nitidus maximus, ad. (p. 362)

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[11] **Falco nitidus** Latham, Index Orn., i, 1790, 41 (Cayenne); Daudin, Traité d'Orn., ii, 1800, 122 (Cayenne); Vieillot, Nouv. Dict. Hist. Nat., xxiii, 1818, 445; Spix, Av. Bras., i, 1824, 19 (Marajo Island).—*Astur nitidus* Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 27 (Cayenne; Guiana).—*Daedalion nitidus* Lesson, Traité d'Orn., 1831, 65.—*Asturina nitida* Sclater and Salvin, Nom. Av. Neotr., 1873, 118, part; Sharpe, Cat. Birds Brit. Mus., i, 1874, 203; Hand-list, i, 1899, 257, part; Brabourne and Chubb, Birds South Amer., i, 1912, 67.—*Asturina nitida nitida* Swann, Synopt. List Accip., pt. 2, 1919, 55; Synop. Accip., ed. 2, 1922, 89; Monogr. Birds Prey, i, 1930, 432 (monogr.); Peters, Check List Birds of World, i, 1931, 241.

gg. Size smaller, wings, ♂ under 250 mm., ♀ under 270 mm. (eastern, central, and southern Mexico).

B. nitidus plagiatus, ad. (p. 359)

dd. Underparts whitish streaked or spotted with dark brownish (young).

e. Top of head whitish narrowly streaked with fuscous-black, in sharp contrast to the dark back.

f. Underparts, and to a lesser extent crown, with a distinct pale cinnamomeous wash (southwestern Costa Rica to northern Columbia)——**B. nitidus blakei**, juv. (p. 367)

ff. Underparts and crown whitish or buffy whitish, not distinctly washed with pale cinnamomeous.

g. Rectrices with the pale interspaces dusky hair brown on outer webs of all and on inner webs of median rectrix as well.

B. nitidus nitidus, juv. (extralimital)

gg. Rectrices with the pale interspaces whitish.

B. nitidus nitidus, imm. (extralimital) [12]

ee. Top of head dark like the rest of the upperparts.

B. nitidus plagiatus, juv. (p. 360)[13]

B. nitidus micrus, juv. (p. 365)

B. nitidus maximus, juv. (p. 362)

bb. Longest primary exceeding distal secondary by very nearly one-third to more than one-third the length of the wing——("subgenus **Buteo**")

c. Tail more than half as long as wing, tarsus much less than half as long as tail.

d. Three outer primaries distinctly emarginate or sinuate on their inner webs.

e. Size larger; wing always over 360 mm. (either sex).

f. Culmen from cere (chord) over 26 mm. in male, over 30 mm. in female.

g. Entire bird nearly uniform sooty brown (Galápagos Islands).

B. galapagoensis, ad. (p. 272)

gg. Underparts ochraceous-buff splotched and streaked with dark brown——**B. galapagoensis**, juv. (p. 272)

ff. Culmen from cere (chord) 25 mm. or less (either sex) (northern North America south to Chile in winter).

g. Entire body and head uniform dark brown.

B. swainsoni, ad., dark phase (p. 296)

gg. Underparts buffy or rufescent more or less marked with dark brown.

h. Underparts with some dark brown or blackish.

i. Underparts dark brown or blackish with some whitish spots and streaks——**B. swainsoni**, juv., dark phase (p. 297)

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[12] The immature plumage of *Buteo nitidus blakei* is unknown to me.

[13] I know of no trenchant characters by which young birds of these three forms may be separated. The juvenal plumage appears to be worn for a year in these races and to fade considerably during that time so that a year-old (immature) bird looks much paler, more earth brown, less fuscous, than a bird of the year. The fact that these three forms, with upperparts unbarred or almost so in the adult plumage, lack a true immature plumage may be looked upon as suggesting that they form one species and that *nitida* and *blakei* (and the Bolivian race, *pallida*), with barred upperparts in the adult plumage and with a definite (at least in *nitida*) immature plumage, may form another species rather than that all are conspecific. I still incline, however, to the latter view.

ii. Underparts buffy or buffy white, spotted with dark brown or blackish.....**B. swainsoni**, juv., light phase (p. 297)

hh. Underparts with no dark brown or black; the breast, at least, rufescent.

i. Entire underparts nearly uniform dark rufous.

B. swainsoni, ad., rufous phase (p. 296)

ii. The breast rufescent, throat white; abdomen buffy white, unbarred or barred with rufous.

B. swainsoni, ad. ♀, light phase (p. 296)

ee. Size smaller, wing never over 325 mm. (usually under 300 mm.).

f. Middle toe without claw, longer than bare portion of tarsus in front (Florida; Mexico, Central and South America).

g. Entire head and body uniform dark brown or blackish.

B. brachyurus, ad., dark phase (p. 352)

gg. Underparts whitish, plain or marked with brown.

h. Underparts uniform whitish or buffy white, with a chestnut patch on either side of the breast.

B. brachyurus, ad., light phase (p. 352)

hh. No chestnut patch on sides of breast; underparts whitish suffused with tawny, sometimes streaked with brown, sometimes immaculate.....**B. brachyurus**, juv. (p. 354)

ff. Middle toe without claw shorter than bare portion of tarsus in front.

g. Abdomen and flanks more or less barred with reddish brown.

h. Bars on abdomen sparse, narrow and poorly defined; size small; wing, ♂ 227, ♀ 252 mm. (Antigua).

B. platypterus insulicola, ad. (p. 319)

hh. Bars on abdomen abundant, wide, and well defined; size larger; wing, ♂ over 250, ♀ usually over 260 mm.

i. Dark marks on breast longitudinal streaks, not bars, the brown streaks not or only slightly incised laterally by the white margins of the feathers.

j. Size smaller; wing, ♂ 256 mm. or less, ♀ 266 mm. or less.

k. Crown fuscous, not fuscous-black or darker (Cuba).

B. platypterus cubanensis, ad. (p. 317)

kk. Crown fuscous-black or darker.

l. Upperparts generally fuscous-black (Lesser Antilles from Dominica to St. Lucia).

B. platypterus rivierei, ad. (p. 322)

ll. Upperparts generally blacker, deeper than fuscous-black (Puerto Rico).

B. platypterus brunnescens, ad. (p. 318)

jj. Size larger; wing, ♂ over 256 mm., ♀ over 266 mm. (Canada to northern South America).

B. platypterus platypterus, imm. (p. 308)

ii. Dark marks on breast so extensively incised laterally by white as to produce the appearance of bars.

j. Size smaller, wing, ♂ 245–255; ♀ 265–268 mm.

k. General color slightly darker; the crown fuscous-black, not fuscous; the breast markings tawny (Lesser Antilles from Dominica to St. Lucia).

B. platypterus rivierei, ad. (p. 322)

kk. General color slightly paler; the crown fuscous; the breast markings ochraceous-tawny (St. Vincent, Grenada; Grenadines).

B. platypterus antillarum, ad. (p. 323)

jj. Size larger, wing, ♂ generally over 260, ♀ generally over 275 mm. (Canada to northern South America).

B. platypterus platypterus, ad. (p. 306)

gg. Abdomen and flanks spotted, not barred, with reddish brown or almost immaculate white.

h. Abdomen and flanks almost immaculate white, very sparsely and narrowly streaked with brown (Antigua).

B. platypterus insulicola, juv. (p. 320)

hh. Abdomen and flanks heavily spotted with brown, the abdominal streaks often widening into large terminal spots.

i. Under wing covers and underparts generally much suffused with tawny-buff (Lesser Antilles).

B. platypterus rivierei, juv. (p. 322)

B. platypterus antillarum, juv. (p. 323)

ii. Under wing coverts and underparts generally pure white.

B. platypterus platypterus, juv. (p. 309)

B. platypterus cubanensis, juv. (p. 317)[14]

dd. Four outer primaries emarginated or sinuated on inner web.

e. Outer webs of primaries spotted with white buffy, or ochraceous.

B. lineatus and races[15]

f. Underparts rufescent, at least the abdomen barred with rufous.

g. Underparts, especially the breast, dark; rich dark cinnamon or cinnamon-rufous to orange-cinnamon.

h. Breast usually uniform in color, not spotted with buffy; dark shaft lines of breast feathers not conspicuous (western North America)_____ **B. lineatus elegans**, ad. (p. 287)

hh. Breast spotted with buffy; dark shaft lines of breast feathers conspicuous (coastal Texas to Louisiana).

B. lineatus texanus, ad. (p. 289)

gg. Underparts paler, very light pinkish cinnamon to cinnamon-buff; breast with some whitish barring.

h. Size larger; wings, ♂ usually over 315 mm., ♀ usually over 335 mm. (North America e. of Great Plains).

B. lineatus lineatus, ad. (p. 280)

hh. Size smaller; wings, ♂ usually under 315 mm., ♀ usually under 335 mm.

i. Size very small, wings, ♂ under 280 mm., ♀ under 310 mm. (southern Florida and Florida Keys).

B. lineatus extimus, ad. (p. 292)

ii. Size larger; wings, ♂ usually over 285 mm., ♀ usually over 310 mm. (South Atlantic and Gulf States).

B. lineatus alleni, ad. (p. 290)

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[14] These races are impossible to tell apart in juvenal plumage, as the slight size difference found in adults is obscured by the degree of growth attained by individual specimens.

[15] The races of the red-shouldered hawk are all based on average characters and consequently are not well adapted to the rigidities of a key. The characters used in the key are therefore inapplicable in some instances, but they have been chosen as fitting the majority of specimens.

ff. Underparts whitish or buffy, spotted or streaked with dark brown.

g. Underparts with deep brownish or dusky prevailing, making the breast look dark brown marked with whitish instead of whitish marked with brown; the brown marks decidedly rufescent (western North America).

B. lineatus elegans, juv. (p. 287)

gg. Underparts with buffy or buffy whitish prevailing; dark brown marks not rufescent.

h. Size larger; wings, ♂ usually over 315 mm., ♀ usually over 335 mm.

i. The thighs unspotted with dark brown or only slightly so marked (North America east of Great Plains).

B. lineatus lineatus, juv. (p. 281)

ii. The thighs with numerous dark brown spots or markings (coastal Texas e. to Louisiana).

B. lineatus texanus, juv. (p. 289)

hh. Size smaller; wings, ♂ usually under 315 mm., ♀ usually under 335 mm.

i. Size very small, wings, ♂ under 280 mm., ♀ under 310 mm. (southern Florida and Florida Keys).

B. lineatus extimus, juv. (p. 292)

ii. Size larger; wings, ♂ usually over 285 mm.; ♀ usually over 310 mm. (South Atlantic and Gulf States).

B. lineatus alleni, juv. (p. 290)

ee. Outer webs of primaries not spotted with white, buffy, or ochraceous.

f. Middle toe without claw equal to, or shorter than, not longer than, the bare portion of the tarsus in front.

g. Tail black, crossed by three broad bands, which are ashy gray on outer webs and pure white on inner ones.

h. Size larger; wings, ♂ over 375 mm., ♀ over 405 mm. (southwestern United States, Mexico to Panama).

B. albonotatus albonotatus, ad. (p. 275)

hh. Size smaller; wings, ♂ under 350 mm.; ♀ under 402 mm. (Pearl Islands, Panama to northern South America).

B. albonotatus abbreviatus, ad. (p. 279)

gg. Tail dark grayish brown (the inner webs partly or wholly white), crossed by numerous narrow, oblique bands of black.

h. Size larger; wings, ♂ over 375 mm.; ♀ over 405 mm. (southwestern United States, Mexico, south to Panama).

B. albonotatus albonotatus, juv. (p. 275)

hh. Size smaller; wings, ♂ under 350 mm., ♀ under 402 mm. (Pearl Islands, Panama, to northern South America).

B. albonotatus abbreviatus, juv. (p. 279)

ff. Middle toe without claw decidedly longer than the bare portion of the tarsus in front.

g. Middle toe without claw not more than 37 mm. long.

B. buteo buteo (extralimital)[16]

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[16] **Falco buteo** Linnaeus, Syst. Nat., ed. 10, i, 1758, 90 (Europe; restricted type locality, Savoy; British Ornithologists' Union, List Brit. Birds, ed. 2. 1915, 139).—*Buteo buteo buteo* Peters, Check-list Birds of World, i, 1931, 235; Hartert, Vög. pal. Fauna, ii, 1914, 1120.

gg. Middle toe without claw over 37 mm. long.

h. Tail mottled or streaked, not regularly barred and not uniform; if nearly uniform, whitish in color, becoming pale brownish toward tip.

i. Underparts whitish (w. and c. North America).

Buteo harlani, ad., light phase (p. 268)

ii. Underparts blackish ..**B. harlani**, ad., dark phase (p. 267)

hh. Tail uniform reddish or uniform reddish with a subterminal blackish bar, or with several dark bars, in which case it may be reddish, dark grayish, brownish, or whitish; never streaked or mottled.

i. Tail reddish, brownish, or whitish, not grayish and not regularly barred.

j. Upperparts much mottled with white; head with much white or buff (western Canada south to Mexico and Louisiana).....**B. jamaicensis kriderii**, ad. (p. 257)

jj. Upperparts not mottled with white.

k. Size smaller; wing, ♂ usually under 355 mm.; ♀ under 370 mm.

l. Abdomen heavily marked with blackish; rectrices reddish except for the black subterminal band (West Indies).

B. jamaicensis jamaicensis, ad. (p. 262)

ll. Abdomen marked with reddish brown, only sparsely with blackish; rectrices with several narrow wavy black bars (southeastern Alaska to Queen Charlotte Islands).

B. jamaicensis alascensis, ad. (p. 256)

kk. Size larger; wing, ♂ usually over 355 mm., ♀ over 370 mm.

l. Entire underparts dark fuscous (western North America).

Buteo jamaicensis calurus, ad., dark phase (p. 246)

ll. Entire underparts not dark fuscous.

m. Entire underparts reddish brown, mottled with fuscous on abdomen (western North America).

Buteo jamaicensis calurus, ad., red phase (p. 246)

mm. Underparts whitish, more or less suffused with tawny or pale rufescent.

n. Thighs usually unbarred or only indistinctly barred.

o. Thighs whitish or buffy.

p. Rectrices with several incomplete dark bands coming from the shaft, as well as the subterminal band.

q. Size smaller; wings, ♂ 357–382 mm., ♀ 397–412 mm. (Cuba; Isle of Pines).

B. jamaicensis solitudinis, ad. (p. 261)

qq. Size larger; wings, ♂ 398–400 mm., ♀ 373–432 mm. (Florida, Bahamas).

B. jamaicensis umbrinus, ad. (p. 260)

pp. Rectrices usually with only the subterminal band; if others present, few in number and small and narrow (eastern and east-central North America).

B. jamaicensis borealis, ad. (p. 237)

oo. Thighs usually distinctly rufescent (mountains s. Mexico to Panama).

B. jamaicensis costaricensis, ad. (p. 265)

nn. Thighs usually barred.

o. Lower breast and abdomen usually with some prominent blackish or brownish black streaks, sharply demarcated from ground color of underparts (western North America).

B. jamaicensis calurus, light phase, ad. (p. 246)

oo. Lower breast and abdomen either without any dark, blackish streaks or with narrow, relatively inconspicuous ones.

p. Breast and upper abdomen indistinctly spotted with black (Tres Marías Islands).

B. jamaicensis fumosus, ad. (p. 264)

pp. Breast and upper abdomen with no black spots.

q. Breast and upper abdomen with no spots at all (Socorro Island).

B. jamaicensis socorroensis, ad. (p. 264)

qq. Breast and upper abdomen with some tawny streaks (Oklahoma to Texas and north-central Mexico).

B. jamaicensis fuertesi, ad. (p. 255)

ii. Tail regularly banded (that is, with more than the subterminal band), usually grayish, sometimes reddish or whitish.

j. Tail decidedly rufescent, not grayish or whitish (mountains southern Mexico to Panama).

B. jamaicensis costaricensis, juv. (p. 265)[17]

jj. Tail grayish, grayish brown, or whitish, not rufescent (sometimes washed with rufous).

k. Tail whitish or very pale tawny cream (western Canada to Mexico and Louisiana).

Buteo jamaicensis kriderii, juv. (p. 257)

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[17] The immature plumages of *B. j. fumosus* and *B. j. socorroensis* are not known.

kk. Tail not whitish or very pale tawny, but grayish or grayish brown.

l. Body entirely blackish (west and central North America)_____**B. harlani**, juv. (p. 268)

B. jamaicensis calurus, black phase, juv. (p. 246)[18]

ll. Body not entirely blackish.

m. Upperparts with very much white mottling (western Canada to Mexico and Louisiana).

B. jamaicensis kriderii, juv. (p. 257)

mm. Upperparts with relatiyely little white mottling and considerable tawny mottling.

n. Size smaller; wing, ♂ usually under 355 mm., ♀ under 370 mm.

o. Pale interspaces of rectrices paler; very distinctly lighter than the dark bars and with a slight rufous wash (Jamaica, Hispaniola, Virgin Islands)

B. jamaicensis jamaicensis, juv. (p. 262)

oo. Pale interspaces of rectrices darker; not very distinctly lighter than the dark bars, and with no rufous wash (southeastern Alaska to Queen Charlotte Islands).

B. jamaicensis alascensis, juv. (p. 256)

nn. Size larger; wings, ♂ usually over 355 mm.; ♀ over 370 mm.

o. Thighs heavily spotted or barred (western North America).

B. jamaicensis calurus, light phase, juv. (p. 246).

B. jamaicensis fuertesi, juv. (p. 255)

oo. Thighs usually unmarked, or if marked, narrowly and sparsely barred.

B. jamaicensis borealis, juv. (p. 239)

B. jamaicensis umbrinus, juv. (p. 260)

B. jamaicensis solitudinis, juv. (p. 261)

cc. Tail less than half as long as wing.

d. Tail slightly less than half as long as wing, square or only slightly rounded; three outer primaries incised on their inner webs.

e. Lower breast, abdomen, thighs, and flanks white, sometimes faintly barred with dusky.

f. Size large; wings, ♂ 430 mm., ♀ 440–475 mm.

B. albicaudatus albicaudatus, ad. (extralimital)[19]

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[18] I know of no certain way of distinguishing between these two in this plumage. Usually *harlani* is purer black, less brownish, than *calurus*, but this condition is not constant.

[19] **Buteo albicaudatus** Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 477 (South America=Rio de Janeiro *apud* Berlepsch, Nov. Zool., xv, 1908, 291).—*Buteo albicaudatus albicaudatus* Peters, Check-list Birds of World, i, 1931, 229.

ff. Size smaller; wings, ♂ not over 430 mm., usually under 440 mm., not over 450 mm.

g. Size very small, wings under 400 mm.

B. albicaudatus colonus, ad. (extralimital)[20]

gg. Size larger, wings over 400 mm. (Texas to Venezuela).

h. Chin and middle of throat white like the breast and abdomen.

B. albicaudatus hypospodius, ad. (p. 232)

hh. Chin and whole throat dark gray, sharply demarcated from the white breast.

B. albicaudatus hypospodius, im. (p. 233)

ee. Underparts largely blackish or brownish black.

f. Size larger; wings, ♂ 430 mm. or over, ♀ 440–475 mm.

B. albicaudatus albicaudatus, juv. (extralimital)

ff. Size smaller; wings, ♂ not over 430 mm., ♀ usually not over 450 mm., usually under 440 mm.

g. Size very small, wings under 400 mm.

B. albicaudatus colonus, juv. (extralimital)

gg. Size larger; wings over 400 mm. (Texas to Venezuela).

B. albicaudatus hypospodius, juv. (p. 233)

dd. Tail much less than half as long as wing, graduated; five outer primaries with inner webs emarginated.

subgenus **Geranoaetus** (extralimital)

e. Abdomen white, finely barred with dark gray.

B. melanoleucus meridensis, ad. (extralimital)[21]

ee. Abdomen with much black (like breast).

B. melanoleucus meridensis, juv. (extralimital)

Subgenus BREWSTERIA Maynard

Large Buteones (wing about 400–478 mm.) resembling *Butaetes* but differing in much broader bill and gape, the width of the latter at rictus nearly equal to length of middle toe with claw; inner toe (without claw) extending to much beyond base of third phalanx of middle toe; middle toe only two-fifths as long as tarsus; lower portion (about one-sixth) of acrotarsium and sides of tarsus unfeathered; culmen (chord) as long as claw of hallux; tail less than half as long as wing, unbanded (at least in adults), and first primary shorter than seventh.

Bill relatively stout, very broad basally, its width at point where anterior edge of cere reaches maxillary tomium greater than length of outer claw, the width of gape at rictus nearly equal to length of middle toe with claw; culmen strongly and regularly curved from base, the maxillary tomium less than half as long as corneous rhinotheca;

[20] **Buteo albicaudatus colonus** Berlepsch, Journ. für Orn., xl, 1892, 91 (Island of Curaçao).—*Tachytriorchis albicaudatus exiguus* Chapman, Bull. Amer. Mus. Nat. Hist., xxxiv, 1915, 637 (Barrigon, head of Río Meta, Colombia).—*Buteo albicaudatus colonus* Peters, Check-list Birds of World, i, 1931, 228. This race is doubtfully distinct from *hypospodius*.

[21] **Geranoaetus melanoleucus meridensis** Swann, Synop. Accip., ed. 2, 1922, 68 (Nevada, 3,000 meters; Mérida, Venezuela); Peters, Check-list Birds of World, i, 1931, 227.

gonys relatively short, much less than half as long as culmen, only two-thirds as long as distance across mandibular rami at base of gnathotheca, faintly ridged medially, faintly convex, ascending terminally, slightly prominent basally; maxillary tomium slightly convex posterior to the anterior concavity; anterior margin of cere strongly convex in front of nostril, strongly receding and nearly straight below; nostril relatively rather large, longitudinally ovate, rather nearer to upper than to lower margin of cere. Wing long and pointed, the longest primary exceeding distal secondary by two-fifths the length of wing; third primary longest, the first shorter than the seventh; inner webs of outer four primaries abruptly emarginated. Tail slightly less than half as long as wing, its tip slightly but distinctly rounded. Tarsus slightly less than one-fifth as long as wing, much less than one-third as long as tail, densely feathered (except on planta tarsi) for five-sixths its length, the lower portion of acrotarsium with small transversely oval scutella, a few of them considerably larger than the rest, the planta tarsi with broad transverse scutella on lower half, smaller, quadrate ones, in two or three series, on upper half; middle toe two-fifths as long as tarsus; outer toe decidedly longer than inner toe, the latter extending to or beyond middle of third phalanx of middle toe; hallux decidedly shorter than inner toe, its claw much longer than the digit; claws moderate in size and curvature, moderately acute, graduated in size, that of outer toe about three-fifths as long as that of hallux.

Plumage and coloration.—Plumage moderately full and compact, the feathers distinctly outlined; loral region rather densely covered with small antrorse feathers with bristlelike tips, the latter recurved terminally, those on lower portion of lores straight and directed downward; tips of outer and longer primaries subacuminate;[22] plumage of thighs well developed but tips of the longer feathers falling far short of base of toes; tarsi for greater part densely feathered, but lower portion (about one-sixth), all round, and entire planta tarsi nude and scutellate. Adults with upperparts mixed grayish brown and cinnamon-rufous, the outer webs of primaries silvery gray, the upper tail coverts and tail white, the former with irregular bars of dusky, the latter shaded, longitudinally, with cinnamon-rufous barred with dusky. Young mostly grayish brown above, the tail white basally and on inner webs, grayish brown terminally, usually with several, more or less distinct, dusky narrow bands; beneath, including thighs, mostly white.

Range.—Western North America, from Mexico to British Columbia, etc. (Monotypic.)

[22] According to Nitzsch, the remiges are 25 (in *Butaëtes*, 24).

BUTEO REGALIS (Gray)

FERRUGINOUS ROUGH-LEGGED HAWK

Adult (sexes alike).—LIGHT PHASE: Feathers of forehead, crown, nape, and sides of throat with fuscous shaft streaks edged with orange-cinnamon, laterally and basally white producing a distinctly streaked brown and white appearance; in some specimens very little orange-cinnamon is present on these feathers; scapulars, interscapulars, back, rump, and lesser and median upper wing coverts bright orange-cinnamon to ferruginous, the feathers with very large and conspicuous fuscous or fuscous-black centers, these centers largest on the upper back, smallest on the median upper wing coverts; (these dark areas generally smaller in females than in males); greater upper wing coverts deep mouse gray becoming browner internally; secondaries and inner primaries deep mouse gray with a silvery bloom on the outer webs, becoming paler, browner and whiter, on the inner webs, the secondaries barred with dusky, the inner primaries less distinctly so; the outer primaries largely immaculate white on the inner webs; broadly tipped with deep neutral gray and with the outer webs deep neutral gray with a silvery bloom; upper tail coverts bright orange-cinnamon to ferruginous barred with fuscous, and white basally; rectrices variable, whitish to light neutral gray more or less washed with dull ferruginous and flecked and mottled with ferruginous and deep neutral gray; occasionally the outer rectrices with a small subterminal fuscous shaft spot; sides of face like top of head; chin, throat, and breast white, the breast feathers with cinnamon shaft streaks; abdomen, sides, and flanks white with wavy cross bars of ferruginous and fuscous; thighs deep ferruginous barred with fuscous; under tail coverts white; axillars and under wing coverts mixed white and deep ferruginous; iris clear light yellow; cere, edges of commissure, and feet bright yellow, bill very dark bluish horn; mouth purplish flesh color; livid bluish along edges.

Adult (sexes alike).—MELANISTIC PHASE: Very different from light phase; entire head and body, upper and under wing, and tail coverts deep clove brown to dark sepia, some of the feathers, especially on the throat, breast, sides, and interscapulars edged with cinnamon; remiges as in light phase except that the deep mouse gray is replaced by deep clove brown; tail as in light phase but with the outer webs of the rectrices heavily washed with deep clove brown; soft parts as in light phase.

Adult (sexes alike).—RUFOUS PHASE: Like the melanistic phase, but more reddish; the clove brown replaced by chocolate.

Immature (sexes alike).—LIGHT PHASE: Similar to adult but with the entire underparts practically immaculate white; occasional fuscous subterminal spots on the sides and very small paler ones on the

flanks; upperparts with less ferruginous or orange-cinnamon (the edges narrower than in adults); rectrices neutral gray with white basal areas and with an indistinct subterminal fuscous band; the whitish basal portion marked irregularly with fuscous.

Immature.—Dark phases: None seen; probably similar to adult except for tail characters (?).

Juvenal (sexes alike).—Similar to immature of light phase, but with the abdomen and thighs spotted with fuscous; a large fuscous patch on the sides; breast and upper abdomen suffused with pale tawny; rectrices with the dark neutral gray portion crossed by four indistinct, broad, fuscous bars, the whitish tips broader than in the immature plumage.

Natal down.—Short, white, woolly down, longer and silkier on the crown and tinged with gray on crown, wings, and rump.

Adult male.—Wing 421–440 (431); tail 231–246 (237.4); culmen from cere 26.3–30.5 (28); tarsus 83–87.5 (85.6); middle toe without claw 36–44 (38.8 mm.) (8 specimens).

Adult female.—Wing 427–450 (432.3); tail 238.5–252 (244); culmen from cere 27–30.5 (29.5); tarsus 81.5–91.5 (86.8); middle toe without claw 37–43.5 (40.3 mm.) (4 specimens).

Range.—Breeds from eastern Washington (Chelan) and possibly the arid southern interior of British Columbia, extreme southern Alberta, southern Saskatchewan, and southwestern Manitoba, south to eastern Oregon and northeastern California, Nevada (near Camp McDermot), Utah, southern Arizona (?), New Mexico, northwestern Texas (Staked Plains), extreme western Oklahoma, Kansas, and the Dakotas (possibly western Iowa).

Winters (rarely) from the northern limits of the breeding range, and (less rarely) in Oregon, Montana, the Dakotas, and western Minnesota, but chiefly in the southwestern United States south to Baja California, Arizona, New Mexico, western Texas, and Mexico (Hidalgo and Zacatecas).

Casual in eastern Minnesota (Hennepin and Stearns Counties), Wisconsin (Lake Koshkonog), and Illinois (Rock Island, Paris).

Type locality.—Real del Monte, Mexico (*ex* G. R. Gray, List Birds Brit. Mus., 1844, 19, *nomen nudum*).

Falco (*Buteo*) *ferrugineus* (not *Falco ferrugineus* Nordmann, 1835) Lichtenstein, Akad. Wiss. Berlin, Gelesen, June 1837 (published 1838), 428 (California; Berlin Mus.)—Grinnell, Univ. California Publ. Zool., xxxviii, 1932, 267 (type loc.; crit.).

Lagopus ferrugineus Fraser, Proc. Zool. Soc. London, 1844, 37 (Mexico); Ann. Mag. Nat. Hist., xiv, 1844, 452, 453 (reprint).

Archibuteo ferrugineus Gray, List Spec. Brit. Mus., pt. 1, Accip.; ed. 2, 1848, 39 (Real del Monte, Hidalgo, Mexico).—Baird, Rep. Stansbury's Expl. Great Salt Lake, 1852, 327 (California); Rep. U. S. and Mex. Bound. Surv., ii, pt.

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2, 1859, 4 (Fort Davis, w. Texas); Cat. North Amer. Birds, 1859, No. 32.—Heermann, Journ. Acad. Nat. Sci. Philadelphia, ii, 1853, 259; Rep. Pacific R. R. Surv., x, pt. 4, 1859, 32 (Sacramento Valley and mountains near San Diego, Calif.; habits).—Cassin, Illustr. Birds California, Texas, etc., 1854, 54, pl. 21; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 34; Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 452 (California); vii, 1855, 283; ix, 1857, 212.—Brewer, North Amer. Ool., i, 1857, 37, pl. 3, fig. 26 (egg).—Henry, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 105 (New Mexico).—Xantus, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 190 (Fort Tejon, Calif.).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 149 (The Dalles, Oreg.).—Blakiston, Ibis, 1861, 318 (between n. and s. branches of Saskatchewan River, breeding; descr. nest and eggs); 1863, 46 (Saskatchewan Prairie, breeding, descr. eggs).—Coues, Ibis, 1865, 537 (Arizona); 1866, 267 (s. California); Proc. Acad. Nat. Sci. Philadelphia, 1866, 46 (Fort Whipple, Ariz.; descr.; anatomy, habits, etc.); Key North Amer. Birds, 1872, 218; Check List North Amer. Birds, 1873, No. 357; Birds Northwest, 1874, 363; Amer. Nat., viii, 1874, 597; Bull. Nuttall Orn. Club, ii, 1877, 26 (Illinois, near Mississippi River); U. S. Geol. and Geogr. Surv. Terr., Bull. 4, 1878, 626 (Pembina Mountains, N. Dak., breeding; Twin Forks of Milk River, Mont., breeding); Check List North Amer. Birds, ed. 2, 1882, No. 526; Key North Amer. Birds, ed. 2, 1884, 551.—Dresser, Ibis, 1865, 325 (Fort Stockton, Tex.).—Gray, Hand-list, i, 1869, 10, No. 83.—Cooper, Orn. California, Land Birds, 1870, 482.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; Bull. Essex Inst., v, 1873, 186 (Colorado); vii, 1875, 39 (Nevada); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 300; Field and Forest, ii, 1877, 210, 212 (Colorado; first descr. of melanistic phase); Orn. 40th Parallel, 1877, 590 (Carson, Nev.); Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 448; Man. North Amer. Birds, 1887, 241; Orn. Illinois, i, 1889, 481.—Allen, Proc. Boston Soc. Nat. Hist., xvii, 1874, 35 (Montana and Dakota; young; common), 65 (North Dakota; descr. nest).—Henshaw, Ann. Lyc. Nat. Hist. New York, ser. 4, xi, 1874, 9 (Ogden, Utah); Zool. Expl. W. 100th Meridian, 1875, 425 (n. New Mexico and s. Colorado, Nov.); Rep. Orn. Spec. Wheeler's Surv., 1876, 264.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 199 (Real del Monte, Hidalgo; California); Hand-list, i, 1899, 262.—Hoffman, Proc. Boston Soc. Nat. Hist., xviii, 1875, 174 (Grand River Agency, Dakota Terr.; Oak Creek).—Nelson, Bull. Essex Inst., viii, 1876, 151 (ne. Illinois; Rock Island).—Bendire, Proc. Boston Soc. Nat. Hist., 1877, 135 (Camp Harney, e. Oregon; near Camp McDermitt, Nev., breeding); Life Hist. North Amer. Birds, i, 1892, 259, pl. 9, figs. 1, 2, 4.—Allen and Brewster, Bull. Nuttall Orn. Club, viii, 1883, 197 (Colorado Springs, Colo.).—Gurney, List Diurn. Birds Prey, 1884, 61; Cat. Birds Prey, 1894, 24.—American Ornithologists' Union, Check-list, 1886, No. 348; ed. 2, 1895, 135; ed. 3, 1910, p. 161.—Goss, Hist. Birds Kansas, 1891, 271 (Kansas; descr.; habits).—Hatch, Notes Birds Minnesota, 1892, 194, 452 (Minnesota; straggler).—Fisher, North Amer. Fauna, No. 7, 1893, 38 (Pahrump and Vegas Valleys, Vegas Wash, Ash Meadows, and Mount Magruder, Nev.); Hawks and Owls United States, 1893, 91, pl. 12.—Thompson, Auk, x, 1893, 49 (near Lake Winnipeg, Manitoba.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico; distr.).—Cooke, Colorado State Agr. Col. Bull. 37, 1897, 75 (Colorado; habits); 56, 1900, 204 (Breckenridge, Colo.; breeds).—Dawson, Auk, xiv, 1897, 173 (Okanogan County, Wash., breeding).—Lantz, Trans. Kansas Acad. Sci. for 1896–97 (1899),

256 (Kansas; resident; commonest in w. part).—Salvin and Godman, Biol.-Centr. Amer., Aves., iii, 1899, 54 (Real del Monte, Hidalgo).—Bailey, Handbook Birds Western United States, 1902, 163 (descr.; distr.).—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 88 (summit of Sierra de la Laguna, Lower California, Nov. 28).—Grinnell, Pacific Coast Avif., No. 3, 1902, 33 (California; fairly common res. w. of Sierras, n. through Sacramento Valley, s. to San Diego County); No. 8, 1912, 10 (California); No. 11, 1915, 66 (formerly common transient and winter vis. in California, now rare or absent; formerly breeding on Cosumnes River?).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 33 (Oregon range).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 65 (Lake Koshkonong, Wis.; 2 records).—Hunn, Auk, xxiii, 1906, 420 (Silver City, N. Mex., Jan., Mar.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 252 (Iowa; occ. in migration).—Widmann, Birds Missouri, 1907, 99 (no definite records).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 469 (near Rock Island, Ill., autumn 1876; near Paris, Ill., Jan. 19, 1886; Lake Koshkonong, Wis., Nov. 10, 1893, and Oct. 1894).—Dawson and Bowles, Birds Washington, ii, 1909, 513 (Washington; habits; distr.).—Saunders, Auk, xxviii, 1911, 36 (Gallatin County, Mont., summer res.); Pacific Coast Avif., No. 14, 1921, 63 (Montana; summer res.; distr.).—Visher, Auk, xxviii, 1911, 11 (Harding County, S. Dak.; breeding).—Zimmer, Proc. Nebraska Orn. Union. v, pt. 2, 1911, 21 (Dawes County, Nebr.; record); pt. 5, 1913, 74 (Thomas County Forest Reserve, Nebr.).—Sclater, Hist. Birds Colorado, 1912, 179 (Colorado; fairly common in e. plains; less so in west).—Willett, Pacific Coast Avif., No. 7, 1912, 47 (s. California, frequent, mostly in fall); No. 21, 1933, 43 (syn.).—Betts, Univ. Colorado Stud. Zool., x, 1913, 194 (Boulder, Colo., summer res.).—Grave and Walker, Birds Wyoming, 1913, 42 (Wyoming; fairly common res.).—Reichenow, Die Vögel, i, 1913, 394.—Tyler, Pacific Coast Avif., No. 9, 1913, 43 (Fresno County, Calif.; winter).—Cameron, Auk, xxxi, 1914, 159 [–167], pls. 14–18 (habits, etc., in Montana).—Swarth, Pacific Coast Avif., No. 10, 1914, 26 (Arizona; ab und. in winter at Fort Whipple; Fort Verde).—Lincoln, Proc. Colorado Mus. Nat. Hist., 1915, 7 (Yuma County, Colo., summer res.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 139 (monogr.; Iowa).—Swann, Synopt. List. Accip., pt. 2, 1919, 54.—Taverner, Auk, xxxvi, 1919, 17, pl. 4, fig. 1 (near Nevis, etc., Alberta; breeding); Birds Western Canada, 1926, 198, pl. 27 A (fig., descr., habits, distr. w. Canada).—Over and Thoms, Birds South Dakota, 1921, 85 (South Dakota).—Gabrielson, Condor, xxiv, 1922, 33, in text (Harney Valley, Oreg., May 24, 1920, 1 spec.).—Brooks, Auk, xl, 1923, 701 (Osoyoos, British Columbia; April and May; may breed).—Hoffmann, Condor, xxv, 1923, 107 (near Brawley, Imperial County, Calif., Jan 2, 1923).—Wood, Univ. Michigan Mus. Zool. Misc. Publ. No. 10, 1923, 40 (Grafton, Walsh County, N. Dak., Oct. 1, and 3, 1920; Stump Lake, N. Dak., breeding).—Gabrielson and Jewett, Auk, xli, 1924, 298 (Elbowoods and Sentinel Butte, N. Dak.).—Grinnell and Storer, Animal Life Yosemite, 1924, 291 (descr.; distr.; habits; Yosemite).—Huey, Condor, xxvi, 1924, 74 (San Diego, Calif.); Auk, xliii, 1926, 353 (s. of Ensenada; Santo Domingo; nw. Lower California).—Mailliard, Condor, xxvi, 1924, 213, in text (Modoc County, Calif.); Proc. California Acad. Sci., xvi, 1927, 298 (Modoc County, Calif.).—Mitchell, Can. Field Nat., xxxviii, No. 6, 1924, 109 (Saskatchewan; fairly common; summer).—Nice and Nice, Birds Oklahoma, 1924, 43 (genl.; Oklahoma).—Swarth, Condor, xxvi, 1924, 186 (fall migr.; San Francisco Mountains, Ariz.).—Brooks and Swarth, Pacific Coast Avif., No. 17,

1925, 56 (Brit. Columbia, prob. summer res. in arid s. interior).—Gloyd, Wils. Bull., xxxvii, 1925, 144 (econ. status, Kansas).—Grey, Condor, xxvii, 1925, 37, in text (Escondido, Ramona, El Cajon, Campo, and National City, Calif.).—Griscom and Crosby, Auk, xlii, 1925, 536 (status, Brownsville region, s. Texas).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 100 (descr.; characters).—Jensen, Auk, xliii, 1926, 253 (La Bajada Hill and Arroyo Hondo, N. Mex.).—Jewett, Condor, xxviii, 1926, 245, in text (nesting near Boardman, Morrow County, Oreg.).—Williams, Wils. Bull., xxxviii, 1926, 33 (Red River Valley, N. Dak.; status).—Wyman, Condor, xxviii, 1926, 98, in text (banded bird killed near Los Angeles, Calif.).—Linsdale, Auk, xliv, 1927, 53 (sev. localities, sw. Kansas).—Larson, Wils. Bull., xl, 1928, 47 (e. McKenzie County, N. Dak.).—Friedmann, The Cowbirds, 1929, 206 (parasitized by cowbird).—Hendee, Condor, xxxi, 1929, 25 (near Spicers Spring, Colo.)—Kemsies, Wils. Bull., xlii, 1930, 204 (status Yellowstone Park, Wyo.).—Pierce, Wils. Bull., xlii, 1930, 268 (status Buchanan County, Iowa).—Bowles and Decker, Murrelet, xii, 1931, 65, in text (Washington; distr., habits, nests).—Groebbels, Der Vögel, ii, 1937, 313, in text (variation in eggs within a set).—Aiken, Auk, lviii, 1941, 71, in text (Colorado; nest).

Buteo ferrugineus Oberholser, Auk, xxxvi, 1919, 421; xxxvii, 1920, 280; xl, 1923, 680.—Dawson, Birds Calif. (stud. ed.), iii, 1923, 1698 (genl.; California).—Nice, Birds Oklahoma, rev. ed., 1931, 74 (genl.; Oklahoma); Bird-Banding, ix, 1938, 106, in text (Clayton, N. Mex.; to Strongfield, Saskatchewan; banding return after 20 years).

Triorchis ferrugineus Swann, Synopsis Accip., ed. 2, 1922, 88.—Bailey, Birds New Mexico, 1928, 178 (genl.; New Mexico.)

Archibuteo regalis Gray, List Spec. Brit. Mus., Accip., 1844, 39; Gen. Birds, i, 1844, pl. 6.

Buteo (*Archibuteo*) *regalis* Kaup, Mus. Senckenb., iii, Heft iii, 1845, 261.

Buteo regalis Oberholser, Auk, xl, 1923, 680.—Bird Life Louisiana, 1918, 172 (Louisiana; casual or accidental winter vis. in South; 1 sight record at McCall, Jan. 14, 1938).—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 110 (distr.; Lower California).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 189 (distr.; Lassen Peak region, n. California).—American Ornithologists' Union, Check-list ed. 4, 1931, 69 (distr.).—Peters, Check-list Birds of World, i, 1931, 231 (distr.).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 23 (Nebraska).—DuMont, Wils. Bull., xliv, 1932, 172 (Brenton's Slough, w. of Camp Dodge, Iowa); xlvi, 1934, 262, in text (Iowa; spring).—Roberts, Birds Minnesota, i, 1932, 327 (distr.; habits; Minnesota).—Decker and Bowles, Murrelet, xv, 1933, 43, in text (Benton County, Wash.); Auk, li, 1934, 446, 448, 449, in text (Washington; distr.; nesting).—Harrold, Wils. Bull., xlv, 1933, 19, in text (Fortine, Mont.; rare vis.).—Wetmore, Condor, xxxv, 1933, 163, in text (Anderson Pass, Ariz.; breeding); xxxvii, 1935, 176, in text (Comstock, Tex.; prehistoric bones).—Weydemeyer, Condor, xxxv, 1933, 121, in text (Fortine, Mont.; rare vis.).—Willett, Pacific Coast Avif., No. 21, 1933, 43 (sw. California; formerly common, now rare except in portions of San Diego and Riverside Counties; syn.).—Jacot, Condor, xxxvi, 1934, 84, in text (Prescott, Ariz.; eggs).—Murie, Condor, xxxvi, 1934, 114, in text (Tulsa, Wyoming; food).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 9 (w. Panhandle of Oklahoma; several records).—Taverner, Birds Canada, 1934, 132 (Canada; col. fig.), pl. 15, A (habits); Can. Water Birds, 1939, 146 (Canada; descr.).—Gilman, Condor, xxxvii, 1935, 240, in text (Death Valley, Calif.).—Long, Univ.

Kansas Sci. Bull., xxxvi, 1935, 230 (w. Kansas; Nov.; common); Condor, xxxix, 1937, 41, in text (Bryce Canyon National Park, Utah); Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas; common res. w. part; rare in east).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 129, in text (se. Wyoming; migr.).—Youngworth, Wils. Bull. xlvii, 1935, 216, in text (Fort Sisseton, S. Dak.; not common).—Howard, Condor, xxxvii, 1936, 35, in text (Rancho La Brea, Calif.; Pleistocene bones).—Huey, Wils. Bull., xlviii, 1936, 122, in text (White Mountains, Ariz.).—Imler, Trans. Kansas Acad. Sci., xxxix, 1936, 300 (Rooks County, Kans.; occ. res.; common in winter); Bird-Banding, viii, 1937, 168, in text (Rooks County, Kans.; weights).—Jewett, Murrelet, xvii, 1936, 43 (Harney County, Oreg.).—Lincoln, Bird-Banding, vii, 1936, 41 (banding recoveries).—Linsdale, Pacific Coast Avif., No. 23, 1936, 43 (Nevada; res. but not common); Amer. Midl. Nat., xix, 1938, 42 (Toyable Mountains, Nev.; 1 record).—Weydemeyer and Marsh, Condor, xxxviii, 1936, 194, in text (Lake Bowdoin, Mont.; not common).—Alexander, Univ. Colorado Stud., xxiv, 1937, 91 (Boulder County, Colo.; fairly common summer res. on plains; some winter records; spec.).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; several records).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 284 (life hist.).—Dixon and Bond, Condor, xxxix, 1937, 100, in text (Tule Lake, Calif.; occas.).—Unglish, Condor, xxxix, 1937, 39, in text (Gilroy, Calif.; winter).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 22 (Brewster County, Tex.; banding record).—Compton, Univ. California Publ. Zool., xlii, No. 3, 1938, 175 (pterylosis).—Bond, Condor, xli, 1939, 56, in text (Tule Lake, Calif., region).—Hargrave, Condor, xli, 1939, 207, 209, in text (Flagstaff, Ariz.; prehistoric bones).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 51 (Colorado; common res.; habits).—Salt, Bird-Banding, x, 1939, 80 (banding recoveries).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 26 (ne. Mexico; s. Coahuila, Parras).—Gabrielson and Jewett, Birds Oregon, 1940, 191 (Oregon; distr., descr., habits, photo).—Engels, Auk, lviii, 1941, 64, in diagram (wing skeletal ratios).—Monson and Phillips, Condor, xliii, 1941, 108 (Peach Springs Station, Ariz.).—Tiemeier, Auk, lviii, 1941, 359, in text (repaired bone injury).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 380 (Uinta Basin, Utah).—Allan and Sime, Wils. Bull., lv, 1943, 34 (Texas Panhandle; res.).—Behle, Bull. Univ. Utah, xxxiv, No. 2, 1943, 36 (sw. Utah; Pine Valley Mountain region); Condor, xlvi, 1944, 71 (Utah).—Baumgartner and Baumgartner, Wils. Bull., lvi, 1944, 210 (Oklahoma; 1 trapped at Lake Carl Blackwell).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 104 (winter vis.).—Hill, Auk, lxi, 1944, 230 (meas.; sex dimorphism).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 89 (Kansas; nests c. and w. Kansas).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 9 (Nebraska; common permanent res.).—McAllister and Marshall, Auk, lxii, 1945, 182 (Fremont National Forest, Oreg.).—Packard, Auk, lxii, 1945, 375 (Rocky Mountain National Park, Colo.).—Wilson, Condor, xlvii, 1945, 150 (Kettleman Hills area, Calif.).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 38 ("Navaho Country," se. Utah and ne. Arizona; permanent res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Bond, Condor, xlviii, 1946, 107, in text (competition with duck hawks).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., 1, 1947, 199 (Idaho).—Mowbray, Condor, xlix, 1947,

173 (Upper Salinas Valley, Calif.; 1 seen Oct. 23, 1944).—Williams, Auk, lxiv, 1947, 186 (Chalk Bluffs, Weld County, Colo.; tick parasites, 1943).

Triorchis regalis Swann, Monogr. Birds Prey, i, 1928, 427 (monogr.).

Buteo californica Hutchins, California Mag., Mar. 1857, 393–396, fig. in text.—Grinnell, Univ. California Publ. Zool., xxxviii, 1932, 267 (type loc., crit.).

Subgenus Tachytriorchis Kaup

Large buteonine hawks (wings usually over 400 mm.), with the tail slightly less than half as long as the wing, its end square or only slightly rounded; three outer primaries incised on their inner webs.

Plumage and coloration.—Plumage full, compact, the primaries and rectrices moderately rigid; general coloration white, gray, and blackish.

Range.—Southern United States to south-central Argentina. (Monotypic.)

BUTEO ALBICAUDATUS HYPOSPODIUS Gurney

Sennett's White-tailed Hawk

Adult (sexes alike except in size).—Top and sides of head and neck dark ashy gray to neutral gray, each feather more or less distinctly edged with deep neutral gray; nape, scapulars, interscapulars and upper back neutral gray edged with deep neutral gray, basally white; lesser upper wing coverts cinnamon to mikado brown, the scapulars

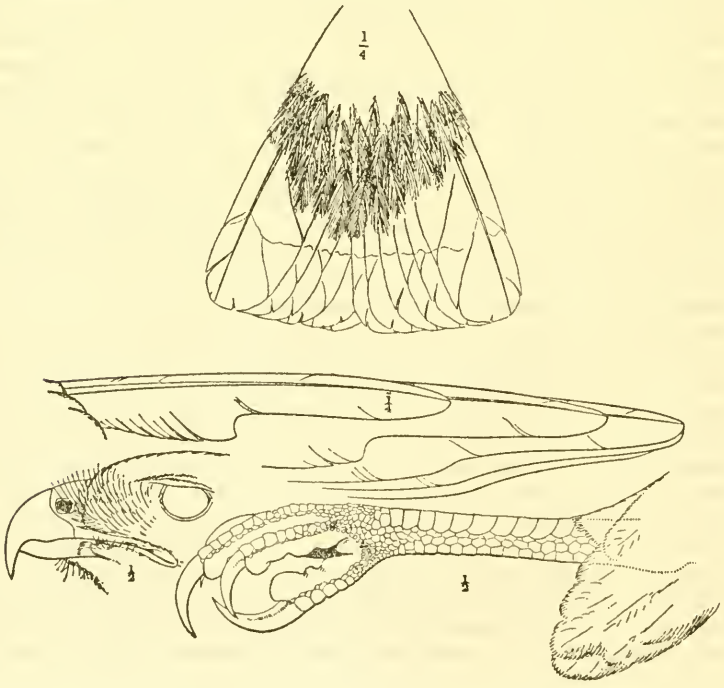

Figure 17.—*Buteo* (*Tachytriorchis*) *albicaudatus*.

tinged with this cinnamon color; the cinnamon feathers with black shaft streaks and some irregular dusky bars, tipped with whitish in fresh plumage, the white tips soon wearing off completely; middle and greater upper wing coverts dark neutral gray to blackish slate as are also the outer webs and broad tips of the primaries; outer secondaries tipped with whitish, secondaries and inner webs of primaries neutral gray paling internally to grayish white, barred narrowly and tipped broadly with dark neutral gray; lower back, rump, and upper tail coverts white narrowly barred with dark gray especially on the upper back and least so, often unbarred, on the upper tail coverts; rectrices white darkening to pale neutral gray, especially on the outer webs of the outer rectrices, the feathers tipped with white, and with a broad subterminal black band; the rest of the feathers sparsely barred with narrow, wavy dusky bars; chin and middle of throat, breast, abdomen, sides, flanks, thighs, and under tail coverts white, more or less (but always sparsely) barred with narrow dark gray or brownish gray bars on the sides and flanks and thighs, but sometimes almost immaculate white; sides of throat and breast neutral gray; axillars and under wing coverts white narrowly barred with dark grayish or brownish gray; iris hazel, cere pale green; bill black at tip, pale horn at base; feet yellow; claws blackish.

Adult (dark phase).[23]—Similar to the pale phase but with the entire underparts neutral gray to slate, the feathers of the abdomen and thighs sparingly edged or barred with white, in some specimens the thighs barred with rufous and white, and the abdomen and smaller upper and under tail coverts somewhat suffused with rufous, the rest of the tail coverts white barred with slate; rectrices white with eight fine darker bars and broad black subterminal band.[24]

Immature.—Similar to adult but with the chin and middle of throat deep neutral gray; the upperparts darker, dark neutral gray to dusky neutral gray.

Juvenal.—Entire head, nape, upper back, scapulars, interscapulars, upper wing coverts, remiges, throat, breast, and upper abdomen dark fuscous to fuscous-black, the upper wing coverts edged with light cinnamon-buff, the feathers of the head and body with white bases, which sometimes show through, the auriculars streaked with buffy

[23] None seen by me; description based on Gurney, Ibis, 1876, 73–76, pl. iii, and Swann, Monogr. Birds Prey, i, 1928, 419.

[24] It is not wholly certain that this plumage (on which the name *hypospodius* is based) is really a phase of Sennett's white-tailed hawk and not either a distinct species or a phase of one of the southern races of *Buteo albicaudatus*, such as *colonus* (which name would then have to be replaced by *hypospodius*, and *sennetti* reinstated for the northern race). I have seen one specimen of the race *colonus* in the dark plumage, an adult female from British Guiana, now in the Cornell University collection.

white, the remiges obscurely banded with fuscous-black on the inner webs, which become paler internally to grayish or grayish white; lower back and rump fuscous-brown, each feather widely edged with white; the upper tail coverts whitish with a submarginal wavy band of brown and with a basal two-thirds of the inner web also brown, the outer web white; the rectrices neutral gray with a slight silvery sheen, and obscurely and narrowly barred with deep neutral gray; upper abdomen irregularly flecked with pale buff; lower abdomen, thighs, flanks, and under tail coverts dirty buff, the feathers with large subterminal fuscous areas which show very conspicuously; under wing coverts fuscous-black edged with pale buff.

Natal down.—Pale buffy on underparts and lower back, darkening through avellaneous and wood brown on the upper back and wings to a mixture of wood brown and benzo brown on the top of the head; a dark, fuscous-brown band through the eyes; eyelids jet black; bill glossy black above and horn color below; feet flesh color, claws pale horn brown (Sennett).

Adult male.—Wings 404–430 (416.4); tail 194-207 (200.6); culmen from cere 23.5–27.5 (25); tarsus 92–95 (93.7); middle toe without claw 39.5–49 (43.5 mm.) (5 specimens).

Adult female.—Wings 423–450 (438.8); tail 198.5–211 (201.4); culmen from cere 25.5–28.5 (27.5); tarsus 84.5–93 (87.1); middle toe without claw 41–47.5 (44.8 mm.) (4 specimens).

Range.—Resident in Lower Austral Zone of southern Texas (Cameron to Tom Green and Concho Counties north to Houston and Galveston Island), southern New Mexico, and Arizona (between Florence and Red Rock; Phoenix; casual), south through Mexico, Guatemala, Costa Rica, Panama, etc., to the northwestern part of Colombia west of the Magdalena River (Medellín; Santa Isabel), and the Merida region of Venezuela.

Type locality.—Medellín, Colombia.

Buteo erythronotus (not *Haliaetus erythronotus* King) Sclater, Proc. Zool. Soc. London, 1857, 211 (Orizaba); 1859, 368 (Jalapa, Veracruz), 389 (Talea, Oaxaca).—Salvin and Sclater, Ibis, 1860, 401 (Antigua, Guatemala).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (San José and San Antonio, Costa Rica); ix, 1869, 207 (Mérida, Yucatán).—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).

Tachytriorchis pterocles (not *Falco pterocles* Temminck, 1823) Cabanis, Journ. für Orn., 1869, 210 (Costa Rica; crit.).

Buteo pterocles Schlegel, Mus. Pays-Bas, Buteones, 1862, 13, part (spec. Mexico).—Pelzeln, Reis. Novara, Zool., i, Vög., 1865, 16, part (Mexico).—Sclater and Salvin, Proc. Zool. Soc. London, 1870, 782 (Mérida, Venezuela); Nom. Av. Neotr., 1873, 119, part.—Lawrence, U. S. Nat. Mus. Bull 4, 1875, 41 (Tapana, Ozxaca; colors of unfeathered parts).

Buteo albicaudatus (not of Vieillot, 1816) Salvin, Proc. Zool. Soc. London, 1870, 215 (Calovebora and Chitra, Veraguas, Panama).—Gurney, Ibis, 1876,

71, in text, part (crit.); List Diurn. Birds Prey, 1884, 69 (crit.); Cat. Birds Prey, 1894, 24.—Brewer, Ibis, 1878, 488 (Rio Grande, Tex.).—Merrill, Proc. U. S. Nat. Mus., i, 1878, 118, 154 (Fort Brown, Tex.; habits; descr. nest and eggs).—Sennett, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, 1879, 420 (Laguna Madre near Corpus Christi, Brownsville, and Lomita Ranch, Tex.; habits, fresh colors of unfeathered parts, etc.); Auk, 1887, 26 (descr. downy young and first plumage).—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 441; Man. North Amer. Birds, 1887, 238.—American Ornithologists' Union, Check-list, 1886, No. 341; ed. 3, 1910, 159.—Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Jalapa, Veracruz).—Lloyd, Auk, iv, 1887, 188 (Tom Green and Concho Counties, w. Texas).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1878, 126 (Costa Rica).—Bendire, Life Hist. North Amer. Birds, i, 1892, 234, pl. 7, figs. 8, 9.—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; southern part).—Breninger, Auk, xiv, 1897, 403 (between Florence and Redrock, Ariz., breeding; descr. nest and eggs).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 58, part (Zacatecas; Jalapa, Orizaba, and Mirador, Veracruz; Puebla; Talea, Tehuantepec, Tupana, and Cacoprieto, Oaxaca; Mérida, Yucatán; Antigua, Dueñas, El Raoul, and San Gerónimo, Guatemala; San José and San Antonio, Costa Rica; Calovebora and Chitra, Panama).—Gardner, Proc. U. S, Nat. Mus., lxvii, art. 19, 1925, pl. 6 (tongue).—Naumburg, Auk, xliii, 1926, 491 (breeds Arizona, New Mexico, sw. Texas).—del Campo, Anal. Inst. Biol., viii, No. 3, 1937, 336 (Morelos, Tecuman; spec.).—Phillips, Condor, xlix, 1947, 121 (Phoenix, Arix.).

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Buteo harlani (not *Falco harlani* Audubon) Sharpe, Cat. Birds Brit. Mus., i, 1874, 191, part (descr. of young from w. Mexico; see Salvin, Ibis, 1874, 314).

Buteo hypospodius Gurney (*ex* Salvin MS.). Ibis, 1876, 73, in text; 76, pl. 3 (Medellín, Colombia); List Diurn. Birds Prey, 1884, 69, part; Cat. Birds Prey, 1894, 24, part.—Sclater and Salvin, Proc. Zool. Soc. London, 1879, 540 (Medellin, Colombia).—Sharpe, Hand-list, i, 1899, 255, part.—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 242 (near Santa Ysabel, Colombia, 10,500 feet).—Swann, Synopt. List. Accip., pt. 2, 1919, 51, part; Synop. Accip., pt. 2, 1922, 84, part.—Stresemann, Journ. für Orn., lxxiii, 1925, 310, in text (mutation study).

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Archibuteo ferrugineus (not *Falco ferrugineus* Lichtenstein) Sennett, U. S. Geol. and Geogr. Surv. Terr., Bull. 4, No. 1, 1878, 43 (Brownsville, Tex.; descr. nest and eggs).

Buteo albicaudatus sennetti Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 144 (lower Rio Grande Valley, Tex.; coll. G. B. Sennett).—American Ornithologists' Union, Auk, x, 1894, 48; Check-list, ed. 2, 1895, 132; ed. 3, 1910, 159.—Ridgway, Man. North Amer. Birds, ed. 2, 1896, 238.—Breninger, Auk, xvi, 1899, 352 (between Florence and Redrock, Ariz., breeding; Phoenix, Ariz.).—Carroll, Auk, xvii, 1900, 342 (Refugio County, Tex., common resident).—Bailey, Handbook Birds Western United States, 1902, 158 (descr.; distr.).—Carriker, Ann. Carnegie Mus., vi, 1910, 456 (San José, Cerro de Santa María, and Laguna de Ochomogo, Costa Rica).—Swarth, Pacific Coast Avif., No. 10, 1914, 26 (Arizona; 2 records; Phoenix, and between Florence and Red Rock; nest.).—Grinnell, Pacific Coast Avif., No. 11, 1915, 181 (California; 1 doubtful record).—Smith, Condor, xx, 1918, 212, in text (becoming rare in lower Rio Grande Valley).—Swann, Synopt. List Accip., pt. 2, 1919, 52; Synop. Accip., ed. 2, 1922, 86 (Texas to Colombia, Venezuela, and Amazon Valley); Monogr. Birds Prey, i, 1928, 418 (monogr.).—Friedmann, Auk, xlii, 1925, 545 (Lower Rio Grande Valley, Tex.; nesting).—Griscom and Crosby, Auk, xlii, 1925, 535 (Brownsville, Tex., region; status).—Stresemann, Journ. für Orn., lxxiii, 1925, 310, in text (crit.; characters).—Palmer, Condor, xxx, 1928, 295, in text (patronymics).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 152 (distr.; Guatemala).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (eats snakes).

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Buteo albicaudatus subsp. Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 150 (Bonda, Santa Marta, Colombia).

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Subgenus Buteo Lacépède

Rather small to large Buteones (wing about 255–470 mm.) with longest primary exceeding distal secondary by very nearly one-third to (usually) more than one-third the length of wing, with tarsus less than twice as long as middle toe, and with three or four outer primaries abruptly emarginated on inner web.

Bill moderate in size to rather large, the culmen one-fourth to more than one-third as long as tarsus, decidedly shorter to slightly longer

than claw of hallux, gradually and rather strongly decurved from base, the maxillary unguis moderately produced, rather long, moderately to distinctly acute; maxillary tomium always more or less sinuated (a more or less prominent convexity behind the anterior (postunguinal) concavity); cere moderately large to large, broad on top (especially toward base), its length on top equal to about three-fifths to nearly three-fourths the length of culmen, its anterior edge distinctly sinuated (convex or vertical in front of nostril, receding and more or less concave below); nostril obliquely oval, ovate, or with anterior end narrower (sometimes pointed), but somewhat variable in outline. Wing relatively long and pointed, the longest primary exceeding distal secondary by a little less than one-third to much more than two-fifths the length of wing; fourth, or third and fourth, primaries longest, the first equal to tenth to longer than seventh; inner webs of three to four outer primaries abruptly emarginated. Tail less than half to three-fifths as long as wing, its tip slightly to much rounded. Tarsus less than one-fifth to one-fourth as long as wing, a little more than one-third to more than half as long as tail, variable as to relative thickness, the upper portion feathered in front for one-third to a little more than half its length, the acrotarsium and planta tarsi each with a single series of broad transverse scutella; middle toe decidedly less to much more than half as long as tarsus; outer toe decidedly to much longer than inner toe, extending to or beyond middle of third phalanx of middle toe; hallux about equal to or shorter than inner toe, its claw equal to or (usually) longer than the digit; claws moderate in size and curvature, acute, distinctly graduated, that of outer toe usually about two-thirds as long as that of hallux (three-fourths as long in *B. abbreviatus*, only three-fifths as long, or a little less, in *B. borealis*).

Plumage and coloration.—Plumage moderately full and compact, that of thighs elongated, forming very distinct "pantalettes"; loral region densely bristled; primaries and rectrices moderately rigid. Coloration extremely variable, but young always conspicuously different from adults.

Range.—Nearly cosmopolitan, but wanting in the Indo-Malayan and Australian regions and Oceania. (Many species, nine in North and Middle America.)

BUTEO JAMAICENSIS BOREALIS (Gmelin)

Eastern Red-tailed Hawk

Adult (sexes alike).—Top of head, auriculars, cheeks, occiput, nape, scapulars, and interscapulars fuscous margined with cinnamon-brown to russet, these edges broadest and most conspicuous on the nape and anterior interscapulars; sometimes nearly equally so on the hind crown and occiput and disappearing on the posterior interscapulars and

scapulars, which are more uniformly dark fuscous; the forehead with much whitish in the great majority of specimens but not in all; upper wing coverts and secondaries hair brown barred more or less distinctly and broadly subterminally banded with fuscous, and narrowly tipped with pale hair brown with sometimes some whitish; the inner webs of the secondaries paling to white internally; the tertials washed with cinnamon-brown and with much white in the majority (but not all) of the specimens; the two outermost primaries very broadly tipped

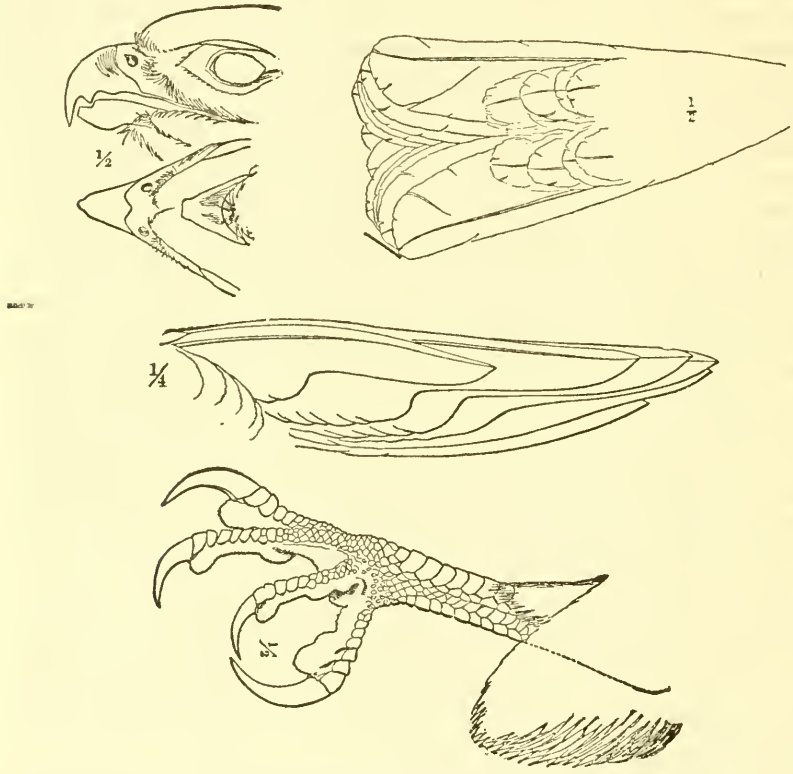

FIGURE 18.—*Buteo* (*Buteo*) *jamaicensis*.

with fuscous-black and with the outer webs of this color, the inner webs whitish, unbarred for their basal half or more; other primaries similar except that the dark areas become a little paler and both the dark and the white areas are barred with fuscous-black; upper back dark fuscous to fuscous-black; lower back and rump somewhat paler, sometimes (rarely) almost hair brown washed with rufescent; upper tail coverts variable, whitish washed with buff and cinnamoneous to nearly solid cinnamon and more or less barred with argus brown; rectrices bright hazel to Brussels brown narrowly tipped with whitish

and crossed by a subterminal band of fuscous-black, the band sometimes almost wanting, sometimes as much as 13 mm. in width; occasionally there are a few other incomplete fuscous-black bars on the tail feathers, but not in the majority of specimens; lores whitish with black shafts to the feathers; a malar stripe of dark fuscous present, depending for its conspicuousness on the darkness or lightness of the brownish cheeks (which, in turn, depend on the width of the cinnamon margins on their feathers); chin and middle of throat usually plain whitish, sometimes streaked with dark olive-brown; sides of throat and breast dark olive-brown to fuscous in the middle of the feathers; bordered with ferruginous, and edged with whitish; rest of underparts whitish with the upper abdomen and sides barred and streaked with bister or warm sepia; the feathers of the lower breast sometimes with pale brown shafts; the thighs often washed with pale buff and sometimes (but not in the majority of cases) indistinctly barred with pale snuff brown to pale hazel; under tail coverts whitish; under wing coverts whitish occasionally marked with dark brown; iris brown; bill bluish horn color; tarsi and toes yellow; the claws dark.

Immature.—There is no true, definite, immature plumage, but only a rather prolonged change from the juvenal to adult stage. These birds are very variable combining in different degrees and combinations the characters of the two plumages.

Juvenal (sexes alike).—Similar to adult but with little or no cinnamon-brown or russet margins on the feathers of the head, cheeks, scapulars, or interscapulars; the entire upperparts dark fuscous to fuscous-black with much white showing on the head, nape, upper wing coverts and inner secondaries and tertials; rump and upper tail coverts grayish white barred with fuscous; the rectrices hair brown crossed by nine fuscous bands and narrowly tipped with whitish; chin, throat, breast, thighs, flanks, and under tail coverts white, usually unmarked; the throat and thighs sometimes spotted with fuscous; the upper abdomen heavily spotted with large oval- or pear-shaped fuscous spots; iris dull yellow; bill bluish horn color; tarsi and toes yellow, claws dark.

Natal down.—Buffy white to grayish white.

Adult male.—Wing 337–396 (369.6); tail 197–240 (215.6); culmen from cere 23.5–28.5 (25.5); tarsus 78–91 (82.1); middle toe without claw 39.2–47 (42.9 mm.).[25]

Adult female.—Wing 370–427 (388.8); tail 214.5–254 (230.3); culmen from cere 25.5–31.3 (26.9); tarsus 76.7–92.5 (84.2); middle toe without claw 41.2–55.5 (47.0 mm.).[26]

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[25] Thirty-five specimens from all parts of the range.

[26] Twenty-seven specimens from all parts of the range.

Range.—Breeds from eastern Mackenzie (Grandin River, Fort Norman; Fort Good Hope); eastern Saskatchewan; northeastern Manitoba (Fort Churchill); northern Ontario (Missinaibi River, Mattagami River, and Moose Factory); and central Quebec (Mingan Islands, Piashti Bay, and probably Natashquam River in Canadian Labrador); east to Quebec, Prince Edward Island (North River); Nova Scotia (Kentville); Newfoundland (Humber River); Maine, and the eastern seaboard of the United States; south to northern Florida (as far south in Florida as Gainesville); the Gulf coast; eastern and central Texas; northeastern Oklahoma; Arkansas, central and eastern Missouri, Iowa, and eastern and north central Minnesota; intergrading with *calurus* in northern Minnesota and the Dakotas, and along the western limits of its range south to central Texas.

Winters from Kansas, eastern Nebraska, southern Ontario, northeastern Iowa, southern Illinois, Indiana, Ohio, and central New York and Massachusetts to the Gulf coast (and to northeastern Mexico?); casual in winter north to northern Minnesota, Wisconsin, southern Ontario, and northern New England.

Accidental in Bermuda (may possibly have been a breeding resident formerly ?), and in England(?) (Nottinghamshire).

Type locality.—Carolina.

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Buteo borealis Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 468, 478.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 47.—Lesson, Traité d'Orn., 1831, 79.—Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 50.—Audubon, Synopsis, 1839, 6; Birds Amer., 8vo ed., i, 1840, 32, pl. 7.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 102.—Giraud, Birds Long Island, 1844, 3 (Long Island, N. Y.; habits).—Kaup, Isis, 1847, 332 (monogr.), 369, 373, 380; *in* Jardine's Contr. Orn., 1850, 76.—Bonaparte, Consp. Gen. Av., i, 1850, 19; Rev. Mag. Zool., vi, 1854, 533.—Pucheran, Rev. Mag. Zool., ii, 1850, 214 (crit. nomencl.).—Barry, Proc. Boston Soc. Nat. Hist., v, 1854, 1 (Wisconsin; abund.).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 279, part (crit.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 25.—Brewer, North Amer. Ool., i, 1857, 21, pl. 2, figs. 16, 17, 17a.—Maximilian, Journ. für Orn., 1858, 16.—Baird, Cat. North Amer. Birds, 1859, No. 23.—Bryant, Proc. Boston Soc. Nat.

Hist., viii, 1861, 109 (crit.; descr. plumages).—Blakiston, Ibis, 1863, 45 (Hudson's Bay; spec.).—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 8 (monogr); No. 36, livr. 10, 1873, 107 (crit.).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City).—Gray, Hand-list, i, 1869, 7, No. 46, part.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; Amer. Nat., vii, 1873, 199, in text (Richland County, Ill.); Proc. Boston Soc. Nat. Hist., xvi, 1874, 23, 74 (Wabash Valley, res.); Ann. Lyc. Nat. Hist. New York, 1874, 381 (Illinois); Man. North Amer. Birds, 1887, 232.—Trippe, Comm. Essex Inst., vi, 1871, 113 (Minnesota; not common).—Coues, Key North Amer. Birds, 1872, 216, part; Check List North Amer. Birds, 1873, No. 351; ed. 2, 1882, No. 516; Key North Amer. Birds, ed. 2, 1884, 544 (descr.; distr.).—Hatch, Bull. Minnesota Acad. Sci., 1874, 51 (Minnesota; res.); Notes Birds Minnesota, 1892, 185, 187, in text, 452 (Minnesota; fairly common summer res.; descr.; eggs).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 188, part (Quebec; Delaware); Hand-list, i, 1899, 246.—Boies, Cat. Birds Southern Michigan, 1875, No. 136 (s. Michigan; res.).—Kumlien, Field and Forest, 1877, 128 (Texas, Dec.).—Nelson, Bull. Essex Inst., ix, 1877, 42 (s. Illinois; not common), 49 (s. Illinois: Fox Prairie), 58 (Cairo, Ill.; seen), 62 (Anna, Union County, Ill.), 65 (s. Illinois).—Gibbs, U. S. Geol. and Geogr. Surv., Bull. 5, 1879, 490 (Michigan; very common).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; rare).—Wheaton, Rep. Birds Ohio, 1882, 587 (Ohio).—Brown, Auk, i, 1884, 123 (Boerne, Kendale County, w. Texas; crit.).—Gurney, List Diurn. Birds Prey, 1884, 65 (crit.); Cat. Birds Prey, 1894, 24.—King, Orn. and Ool., ix, 1884, 81 (n. Illinois; habits).—Reid, U. S. Nat. Mus. Bull. 25, 1884, 220 (Bermuda, 1 spec.; formerly breeding ?).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 337.—Seton, Auk, iii, 1886, 154 (Manitoba, common summer res.).—Bendire, Life Hist. North Amer. Birds, i, 1892, 206, pl. 6, figs. 5, 6.—Fisher, Hawks and Owls United States, 1893, 48, pl. 7.—Lantz, Trans. Kansas Acad. Sci., for 1896–97 (1899), 255 (Kansas; common).—Nash, Check List Birds Ontario, 1900, 29 (Ontario; common summer); Check List Vert. Ontario: Birds, 1905, 40 (Ontario).—Porter, Auk, xvii, 1900, 72 (Humber River, Newfoundland).—Allen, Proc. Manchester Inst. Sci. and Arts, iv, 1902, 98 (New Hampshire, res.).—Preble, North Amer. Fauna, No. 22, 1902, 106 (Hill and Steel Rivers, Keewatin, breeding; Fort Churchill).—Dawson, Birds Ohio, 1903, 403, 405, 653, pl. 47 (Ohio; descr.; habits; fig.).—Jones, Birds Ohio, rev. ed., 1903, 92 (Ohio; resident; food habits).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 62 (Wisconsin; habits).—Stockard, Auk, xxii, 1905, 151 (breeding habits, Mississippi).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 208 (Essex County, Mass.).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 186 (Cambridge, Mass.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 246 (Iowa; habits).—Widmann, Birds Missouri, 1907, 94 (summer res.).—Knight, Birds Maine, 1908, 226.—Stone, Birds New Jersey, 1908, 162 (New Jersey; descr.; habits).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 460 (Illinois; Wisconsin).—Wayne, Birds South Carolina, 1910, 73 (winter visitor on coast, res. in interior).—Reichenow, Die Vögel, i, 1913, 393.—British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, 337 (one doubtful record for England).—Burns, Orn. Chester County, Pa., 1919, 53 (stat; habits).—Corrington, Auk, xxxix, 1922, 544 (Biloxi, Miss.; winter).—Griscom, Birds New York City region, 1923, 186 (status, New York City region).—Johnston, Birds West Virginia, 1923, 16, 88 (West Virginia).—Smyth, Auk, xliv, 1927, 45 (Mont-

gomery County, Va.).—Christy, Auk, xlviii, 1931, 374 (change of status, Sandusky Bay, Lake Erie).—Snyder, Auk, xlviii, 1931, 118 in text (paired ovaries).—Guthrie, Wils. Bull., xliv, 1932, 102, in text (eats snakes).—Errington, Condor, xxxv, 1933, 26 (food habits in Wisconsin).—Fitzpatrick, Wils. Bull., xlvi, 1934, 21, in text (paired ovaries).—Henderson, Wils. Bull., xlvi, 1934, 117, in text (feeding habits).—Pierce, Auk, li, 1934, 254 (catching mice; Buchanan County, Iowa); Proc. Iowa Acad. Sci., xlvii, 1941, 375 (ne. Iowa; winter).—Taverner, Birds Canada, 1934, 124 (Canada; genl.; col. fig.; distr.); Condor, xxxviii, 1936, 66, 69, 71, in text (tax.); Can. Water Birds, 1939, 134 (Canada; descr.).—Taverner and Sutton, Ann. Carnegie Mus., xxiii, 1934, 26 (Churchill, Manitoba; probably rare wanderer from forested interior; 3 sight records).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 21 (Ontario; summer res.; distr.).—Lincoln, Bird-Banding, vii, 1936, 39 (banding recoveries).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 132 (Connecticut Valley, Mass.; habits).—Cooke, Bird-Banding, viii, 1937, 53 (longevity; banding recoveries).—Groebbels, Der Vögel, ii, 1937, 23, in text (right ovary), 204 (uses leaves as nest materials).—Shortt and Waller, Contr. Roy. Ontario Mus. Zool., No. 10, 1937, 15 (Kale St. Martin region, Manitoba; spec.).—Errington and Breckenridge, Wils. Bull., l, 1938, 114, in text, part (Wisconsin; Iowa; food habits).—Snyder, Trans. Roy. Can. Inst., xxii, 1938, 184 (w. Rainy River district, Ontario; descr.; nest.; spec.).—Nice, Bird-Banding, x, 1939, 43, in text (longevity).—Ricker and Clarke, Contr. Roy. Ontario Mus. Zool., No. 16, 1939, 7 (Ontario; Lake Nipissing; rare, summer).—Allin, Trans. Roy. Can. Inst., xxiii, 1940, 95 (Darlington Township, Ontario; reg. summer res.).—Engels, Auk, lviii, 1941, 63, 64, in text (skeletal ratios).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 43 (Prince Edward County, Ontario; occ. migr. spring and fall; occ. winter; not in summer).—Stewart, Auk, lx, 1943, 390 (Shenandoah Mountains; breeds).—Fisher, Auk, lxii, 1945, 126, 127 (flight and musculature).—Hartman, Auk, lxiii, 1946, 52 (endocrines).

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Buteo borealis borealis Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 282.—Nelson, Bull. Essex Inst., viii, 1876, 119 (ne. Illinois; common).—Goode, U. S. Nat. Mus. Bull. 20, 1883, 309.—Bangs, Proc. New England Zool. Club, ii, 1901, 68, in text.—American Ornithologists' Union, Check-list, ed. 2, 1895, 130; ed. 3, 1910, 157; ed. 4, 1931, 65; Auk, lxi, 1944, 444 (nomencl.).—Barrows, Michigan Bird Life, 1912, 280. (Michigan; habits, description, distribution).—Bailey, Birds Virginia, 1913, 111 (Virginia; distr.; descr.; habits); Birds Florida, 1925, 69, pl. 37 (fig.; distr.; Florida).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 77.—Townsend, Auk, xxx, 1913, 6 (Natashquam River, Labrador); Mem. Nuttall Orn. Club, No. 5, 1920, 101 (Essex County, Mass.; status; habits).—Eaton, Birds New York, ii, 1914, 81, pls. 43, 46, 47.—Horsbrugh, Ibis, 1916, 682 (Alix and Buffalo Lake districts, Alberta; breeding).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 93 (monogr; Iowa).—Swann, Synop. List Accip., pt. 2, 1919, 47; Synop. Accip., ed. 2, 1922, 77; Monogr. Birds Prey, i, 1926, 389 (monogr).—Burns, Orn. Chester County, Pa., 1919, 52 (status; habits).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 167 (North Carolina; descr.; distr.; habits); 1942, 93 (North Carolina; descr.; distr.; habits).—Holt, Geol. Surv. Alabama, Mus. Pap. No. 4, 1921, 49 (Alabama,

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Astur borealis CUVIER, Règne Anim., ed. 2, i, 1829, 332.

Poecilopternis borealis GOODE, U. S. Nat. Mus. Bull. 20, 1883, 337.—HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1890, 266, part (Louisiana; New York).

Falco leverianus GMELIN, Syst. Nat., i, pt. 1, 1788, 266 (Carolina; based on Leverian Falcon Pennant, Arctic Zool., 1785, 2, 206).—LATHAM, Index Orn., i, 1790, 18; Gen. Hist. Birds, i, 1821, 620.—DAUDIN, Traité d'Orn., ii, 1800, 226.—SHAW, Gen. Zool., vii, 1812, 151.—VIEILLOT, Nouv. Dict. Hist. Nat., iii, 1816, 162.—BONAPARTE, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2 1824, 347; iv, pt. 2, 1825, 269; Obs. Wilson's Amer. Orn., 1826, [8] [128].—AUDUBON, Orn. Biogr., i, 1831, 265.—LESSON, Traité d'Orn., 1831, 46.

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Buteo leverianus VIGORS, Zool. Journ., i, 1824, 340.—STEPHENS, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 47.

Astur leverianus CUVIER, Règne Anim., ed. 2, i, 1829, 332.

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Buteo aquilinus COUES, Birds Colorado Valley, 1878, 593 (crit. nom.); Bull. Nuttall Orn., Club., iv, 1879, 84, footnote (crit. nomencl.).

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Accipiter ruficaudus VIEILLOT, Ois. Amér. Sept., i, 1807, 43, pl. 14 bis (fig.; Virginia); Nouv. Dict. Hist. Nat., iv, 1816, 468, part (cites *Falco jamaicensis* Gmelin).—VAN ROSSEM, Condor, xxxvii, 1935, 215, in text.

Buteo fulvus VIEILLOT, Ois. Amér. Sept., i, 1807, 34.

Buteo gallinivorus VIEILLOT, Nouv. Dict. Hist. Nat., iv, 1816, 472 (United States).

Buteo americanus VIEILLOT, Nouv. Dict. Hist. Nat., iv, 1816, 477 (United States; based on *Buteo ferruginicaudus* Vieillot, Otis. Amér. Sept., 1, 1807, pl. 6).

Buteo pictus PHILIPPI, Arch. für Naturg., lxv, i, 1899, 167, 169 ((Province of Valdivia, Chile); An. Mus. Nac. Chile, entr. xv, sect. 1, Zool., 1902, 17, pl. 9 (fig.).

Buteo borealis calurus Nelson, Bull. Essex Inst., viii, 1876, 119 (ne. Illinois; near Chicago; spec.).—Dawson, Birds Ohio, 1903, 405, 657 (Ohio; descr.; distr.).—Jones, Birds Ohio, rev. cat., 1903, 217 (Ohio; 1 spec.).—[Nash], Check List Vert. Ontario: Birds, 1905, 40, in text (Ontario; occas.).

Buteo calurus Dawson, Birds Ohio, 1903, 405 (Franklin County, Ohio; spec.).

Buteo jamaicensis Taverner, Condor, xxxviii, 1936, 66, in text (crit.).—Oberholser, Bird Life Louisiana, 1938, 165 (Louisiana; rare winter vis. in s. part).—Baumgras, Wils. Bull., lvii, 1945, 129 (Michigan; kills crows).—Goolin, Wils. Bull., lvii, 1945, 131 (Ohio; bones from mounds).

BUTEO JAMAICENSIS CALURUS Cassin

Western Red-tailed Hawk

Adult.—Melanistic phase (sexes alike): Entire head, body, wings, except the remiges, and thighs uniform fuscous to chaetura drab; the upper tail coverts orange-cinnamon basally; the under tail coverts pale cinnamon subterminally very broadly marked with fuscous and edged and tipped with orange-cinnamon; remiges as in the pale ("normal") phase or as in *borealis*, but the white grayer and the dark area on the tips more extensive; rectrices orange-cinnamon to dark hazel, subterminally banded with fuscous-black and often with some incomplete fuscous-black bars along the shaft.

Adult.—Red phase (sexes alike): Similar to the melanistic phase, but with the feathers of the occiput, nape, and interscapulars edged with orange-cinnamon; the scapulars and inner secondaries barred with smoke gray, their tips often washed with buff; upper tail coverts orange-cinnamon with fuscous-black shafts, and barred incompletely with fuscous-black; remiges as in adult *borealis;* sides of head, chin, and throat fuscous; the breast and upper abdomen ochraceous-salmon to dark hazel, with black shaft streaks; abdomen and under tail coverts like the breast, but barred with fuscous to chaetura drab; the under tail coverts a little lighter; thighs like the breast and obscurely or less broadly barred with fuscous; axillars and under wing coverts cinnamon or buffy barred with fuscous.

Adult.—Pale ("normal") phase (sexes alike): Similar to the adult of *borealis*, but with the upper back averaging a little darker, more blackish, the underparts usually with a definite wash of pale buff or pale tawny, and with the thighs definitely barred with from cinnamon-buff to orange-cinnamon; the rectrices often, but not always, with incomplete accessory bands along the shaft; iris straw color, mottled with brown to light sepia; orbital ridge olive-green; bill blackish, pale bluish at base; cere greenish yellow; gape wax yellow; feet from dirty pale yellow to deep chrome yellow.

Juvenal.—Melanistic phase: Similar to the adult of this phase, but with the tail dark grayish banded with blackish.

Juvenal.—Pale "normal" phase (sexes alike): Similar to that of *borealis*, but usually more abundantly spotted with fuscous-brown

on the throat and breast, and with the thighs heavily barred or spotted with fuscous-brown; iris pale yellowish gray to very pale bister brown; bill as in adult; orbital ridge blackish olive; cere greenish yellow to gamboge; gape chrome yellow; feet bright light chrome yellow.

Natal down.—Buffy white.

Adult male.—Wing 358–404 (387); tail 207–237 (223.4); culmen from cere 23.5–28.5 (25.4); tarsus 80.8–93 (85.4); middle toe without claw 39.8–48.5 (43.8 mm.).[27]

Adult female.—Wing 386–428 (411.2); tail 220–249 (236.9); culmen from cere 24.6–30.5 (27.4); tarsus 82–96 (88.4); middle toe without claw 41.5–54.5 (47.1 mm.).[28]

Range.—Breeds from Alaska (Circle, Tanana River, etc.), the Yukon (Forty Mile), west-central Mackenzie, the interior of British Columbia, Alberta, western and southern Saskatchewan, and southern Manitoba to western and south-central Minnesota (intergrading with *borealis* in central, and, occasionally, even in eastern, Minnesota and Wisconsin); south to southern Baja California, Sonora, and Chihuahua in the west, and to western Missouri, western Oklahoma, and western and northwestern Texas on the east, intergrading with *borealis* all along its eastern limits; the exact southern limits are not known.

Winters from southwestern British Columbia and southern Minnesota south throughout its breeding range east to Louisiana (West Baton Rouge and Iberville) and farther south through Mexico (including Guadalupe Island) and Guatemala to the mountains of northern Nicaragua (Volcán de Chinandega; Matagalpa; San Juan del Sur).

Casual in Illinois; accidental in western Pennsylvania and New Jersey (Andover).

Type locality.—Fort Webster, N. Mex.

Buteo borealis (not *Falco borealis* Gmelin) Vigors, Zool. Voy. *Blossom*, 1839, 15.—Gambel, Proc. Acad. Nat. Sci. Philadelphia, 1846, 45 (California); Journ. Acad. Nat. Sci. Philadelphia, i, 1847, 26 (California).—Gray, List Spec. Brit. Mus., ed. 2, 1848, 34, part (San Francisco, Calif.; Mexico).—Baird, Rep. Stansbury's Expl. Great Salt Lake, 1852, 314 (Salt Lake Valley); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (Jamacha Ranch and Santa Ysabel, Calif.).—Heermann, Journ. Acad. Nat. Sci. Philadelphia, ii, 1853, 239 (California).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 279, part (crit.).—Sclater, Proc. Zool. Soc. London, 1859, 389 (Talea, Oaxaca).—Sclater and Salvin, Ibis, 1859, 217 (Dueñas, Guatemala); Nom. Av. Neotr., 1873, 118, part.—(?) Blakiston, Ibis, 1863, 45 (interior nw. Canada).—Coues, Key North Amer. Birds, 1872, 216, part.—Allen, Proc. Boston Soc. Nat. Hist. xvii, 1874, 34 (Montana and Dakota; occas.).—Hoffman, Proc. Boston Soc. Nat. Hist., xviii, 1875, 173 (Grand River Agency, Dakota Terr.; occas.).—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 41

[27] Thirty-seven specimens from all parts of the range.

[28] Forty-five specimens from all parts of the range.

(Cacoprieto and Tehuantepec City, Oaxaca).—Goss, Hist. Birds Kansas, 1891, 259 (Kansas; common; descr.; habits; eggs), 263, in text (geogr. color phase=*B. b. harlani*).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, Nos. 7, 8, 1894, 226 (Mexico; distr.).—Bailey, Handb. Birds Western United States, 1902, 155 (descr.; distr.).—Mitchell, Can. Field-Nat., xxxviii, 1924, 109 (Saskatchewan; Moose Mountain to Big River; fairly common).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 95 (bones, Rancho La Brea); Condor, xxxvii, 1935, 76, in text (McKittrick, Calif.; Pleistocene bones).—Taverner, Birds Western Canada, 1926, pl. 26 A (fig.; descr.; habits; distr.; w. Canada); Nat. Mus. Canada Bull. 50, 1928, 92 (near Belvedere, Alberta; breed.).—Groebbels, Der Vögel, i, 1932, 186 (alt. distr. Colorado).—Miller, Condor, xxxiv, 1932, 138 (remains in Indian dwellings; Arizona).—Howard and Miller, Condor, xxxv, 1933, 16, in text (bones; Organ Mountains, N. Mex.).—Howard and Dodson, Condor, xxxv, 1933, 235, text (Point Mugu, Calif.; shellmound remains).—Compton, Condor, xxxvi, 1934, 221, in text (bones descr.).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 8 (w. Panhandle of Oklahoma; sev. records; food).—Hargrave, Condor, xxxvii, 1935, 83, text (Flagstaff, Ariz.; spec.; food habits).—Howard, Condor, xxxvii, 1935, 207, in text.—Youngworth, Wils. Bull., xlvii, 1935, 216, in text (Fort Sisseton, S. Dak. summer res.).—Grinnell and Linsdale, Vert. Anim. Point Lobos Reserve, 1936, 39, 53 (Point Lobos, Calif.; most conspicuous kind of hawk; present almost entirely for food; possibly nesting pair; feeding habits).—Dixon and Bond, Condor, xxxix, 1937, 97, text (California: Tule Lake vicinity; 8 pairs nesting).—Bond, Condor, xli, 1939, 56, text (California: Tule Lake region; food habits).—Hargrave, Condor, xli, 1939, 122, in text (Roosevelt Lake, Ariz.; food habits), 207 and 209, in text (Awatobi Pueblo, Utah; prehistoric bone).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas).—Sutton and Phillips, Condor, xliv, 1942, 59 (Arizona; Papago Indian Reservation).—Allan and Sime, Wils. Bull., lv, 1943, 33 (Texas Panhandle; uncommon, but not rare).—Johnston, Condor, xlv, 1943, 62, in text (Boulder, Colo.).—Larrison, Murrelet, xxiv, 1943, 43 (Northrup Canyon, Wash.).—Sooter, Condor, xlvi, 1944, 88 (feeding habits; Oregon).—Wing, Murrelet, xxv, 1944, 4 (Okanogan Cascades, Wash.).—Munro, Can. Journ. Res., D, xxiii, 1945, 53 (Cariboo Parklands, Brit. Columbia; common summer vis.).

Buteo borealis borealis Over and Thoms, Birds South Dakota, 1921, 83 (South Dakota; common summer res.; food).—Taverner, Nat. Mus. Canada, Bull. 50, 1928, 92 (near Belvedere, Alberta; breeds).—Jung, Auk, xlvii, 1930, 537 (common; Peace and Athabaska Rivers, Alberta).—Monson, Wils. Bull., xlvi, 1934, 42, in text (Cass County, N. Dak.; common migr.; occ. nest).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 8, in text (e. Panhandle of Oklahoma).—Bailey and Conover, Auk, lii, 1935, 422, in text (Mexico; spec.).—Imler, Bird-Banding, viii, 1937, 167, in text (Rooks County, Kans.; weights of 7).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas; common res. in e. part; winters abundantly in s. part).

Buteo jamaicensis borealis Peters, Check-list Birds of World, i, 1931, 231, part.—Sutton, Ann. Carnegie Mus., xxvii, 1938, 176 (Tarrant County, Tex.; breeds).—Davis, Condor, xlii, 1940, 81, in text (Brazos County, Tex.; perm. res.).

Poecilopternis borealis Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 266, part (Mexico).

Buteo montanus (not *B. montanus* Nuttall, 1840) Gambel, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 45 (California).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1856, 39 (crit.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 26.—Brewer, North Amer. Ool., i, 1857, 26, pl. 1, fig. 6.—Newberry, Rep. Pacific R. R. Surv., iv, pt. iv, chapt. ii, 1857, 75 (California; Oregon; Washington).—Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (California; Devils River, and Laguna, Tex.); Rep. Pacific R. R. Surv., x, pt. 2, 1859, 11 (Sangre de Cristo Pass; descr.); Cat. North Amer. Birds, 1859, No. 24.—Heermann, Rep. Pacific R. R. Surv., x, pt. iv, No. 2, 1859, No. 2 (California; New Mexico; Texas).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 147 (Puget Sound, upper Columbia River, etc.).—Bryant, Proc. Boston Soc. Nat. Hist., viii, 1861, 111 (Cape San Lucas; Fort Steilacoom, Wash.; crit.; descr. plumages).—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 43 (Arizona; synonymy; crit.).—Gray, Hand-list, i, 1869, 7, No. 49.—Cooper, Orn. California, Land Birds, 1870, 469.

(?) *Buteo borealis* var. *montanus* Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 207 (Mérida, Yucatán; crit.).

Buteo borealis subsp. a. *Buteo montanus* Sharpe, Cat. Birds Brit. Mus., i, 1874, 189, part (Sumas Prairie, Brit. Columbia; w. side of Rocky Mountains; San Francisco, Calif.; Mexico; Guatemala ?).

Buteo harlani (not *Falco harlani* Audubon) Lawrence, Ann. Lyc. Nat. Hist. New York, v, 1852, 220 (Fort Mojave, Calif.; crit.).—Cooper, Orn. California, Land Birds, 1870, 473, part (descr. supposed young).

(?) *Buteo harlani* Sclater, Proc. Zool. Soc. London, 1857, 211 (Orizaba, Veracruz).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 191, part (specs. from Guatemala).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 65, part (spec. from Orizaba, Veracruz).

Buteo harlani ? (not *Falco harlani* Audubon) Sclater and Salvin, Ibis, 1859, 217 (Dueñas, Guatemala; see Salvin, Ibis, 1874, 314).

(?) *Leucopternis harlani* Heney, Proc. Acad. Nat. Sci. Philadelphia, 1859, 105, part (Gila River, Ariz.).

Buteo calurus Cassin, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 281 (near Fort Webster, N. Mex.; coll. Acad. Nat. Sci.=melanistic adult); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 14; ed. 1860 (Birds of North America), Atlas, pl. 14.—Brewer, North Amer. Ool., i, 1857, 32, pl. 1, fig. 7.—Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (Copper Mines, Ariz.); Rep. Pacific R. R. Surv., x, No. 2, 1859, 11, pl. 14 (descr.); Cat. North Amer. Birds, 1859, No. 20.—Bryant, Proc. Boston Soc. Nat. Hist., viii, 1861, 112 (descr. plumages; Fort Crook and Fort Tejon, Calif.); *in* Cooper, Orn. California, Land Birds, 1870, 471.—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 44 (Fort Whipple, Ariz.; crit.).—Gray, Hand-list, i, 1869, 7, No. 48.—Bendire, Proc. Boston Soc. Nat. Hist., xviii, 1875, 163 (Camp Harney, Oreg.; nest).—Gurney, Cat. Birds Prey, 1894, 24.—Sharpe, Hand-list, i, 1899, 246.

Buteo borealis calurus Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado; everywhere); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 258, 286; Bull. Essex Inst., vii, 1875, 13 (Carson City, Nev., winter), 15 (Truckee Valley, Nev.; common), 21 (e. slope of Ruby Mountains, Nev.), 34 (Parleys Peak, Wasatch Mountains), 39 (Nevada); Bull. Nuttall Orn. Club, i, 1876, 35, in text; Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 436b; Man. North Amer Birds, 1887, 233; Auk, xl, 1923, 325, in text (crit.).—Coues, Check List North Amer. Birds, 1873, No. 351a; ed. 2, 1882, No. 517.—Lawrence, Mem. Boston Soc. Nat. Hist.,

ii, 1874, 301, part (Mazatlán).—Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (Utah).—Nelson, Proc. Boston Soc. Nat. Hist., xvii, 1875, 347 (Salt Lake City); Bull. Nuttall Orn. Club, i, 1876, 40 (near Chicago, Ill.; 1 spec., Apr. 1873).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 135 (Camp Harney, Oreg.; fairly common res.; eggs); Life Hist. North Amer. Birds, i, 1892, 213, pl. 6, figs. 7, 8.—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 337b, 130; ed. 3, 1910, 157, part; ed. 4, 1931, 66, part.—Scott, Auk, iii, 1886, 422 (Pinal County, Ariz.; descr. nests, etc.).—Bryant, Bull. California Acad. Sci., ii, 1887, 279 (Guadalupe Island, Lower California; breeding; habits); Proc. California Acad. Sci., ser. 2, ii, 1889, 280 (Lower California).—Saunders, Auk, v, 1888, 205 (St. Thomas, Ontario, fall of 1885); Pacific Coast Avif., No. 14, 1921, 62 (Montana; common summer res.; distr.; records).—Goss, Hist. Birds Kansas, 1891, 262 (Kansas, irreg. winter res.; descr.; eggs).—Hatch, Notes Birds Minnesota, 1892, 187, 452 (Minnesota: Red River, 1 spec.).—Cooke, Colorado State Agr. Coll. Bull. 37, 1897, 75 (Colorado; abund. res.); Bull. 56, 1900, 204 (Breckenridge, Colo.; breeds).—Lantz, Trans. Kansas Acad. Sci., 1896–97 (1899), 255 (Kansas; irreg. West Virginia).—Bishop, North Amer. Fauna, No. 19, 1900, 93 (upper Yukon Valley).—Samuel, Auk, xvii, 1900, 386 (near Toronto, Ontario, 1 spec., Nov. 5, 1895).—McGregor, Pacific Coast Avif., No. 2, 1901, 6 (Santa Cruz County, Calif.; common res.).—Bailey, Handb. Birds Western United States, 1902, 156 (descr.; distr.); Birds New Mexico, 1928, 161 (genl.; New Mexico).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 32 (Oregon range).—Grinnell, Pacific Coast Avif., No. 3, 1902, 32 (California; abund. perm. res.); No. 8, 1912, 10 (California; listed); No. 11, 1915, 65 (common res. throughout California); Proc. California Acad. Sci., ser. 4, xiii, No. 5, 1923, 63 (Death Valley, Calif.); Univ. California Publ. Zool., xxxii, 1928, 108 (distr.; Lower California).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 63 (Wisconsin; habits).—Thayer and Bangs, Condor, x, 1903, 104 (Guadalupe Island).—Swarth, Pacific Coast Avif., No. 4, 1904, 6 (Huachuca Mountains, Ariz.; breeds); No. 10, 1914, 25 (Arizona; abundant res.); Univ. California Publ. Zool., xxiv, 1922, 211 (Glenore, etc., Stikine Bay, s. Alaska; crit.; food); Condor, xxvi, 1924, 186 (fall migr.; San Francisco Mountains, Ariz.); Proc. California Acad. Sci., ser. 4, xviii, 1929, 293 (lowlands of Arizona); Condor, xxxv, 1933, 40 (Guadalupe Island, Mexico).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 248 (Iowa records).—Widmann, Birds Missouri, 1907, 96 (near Billings, 2 specs., fall 1888; near Warsaw, Ill., several during breeding season).—Woodruff, Chicago Acad. Sci. Bull. 6, 1907, 95 (near Chicago, Ill., 1 spec., April 1873).—Preble, North Amer. Fauna, No. 27, 1908, 355 (Alberta, etc., north to limit of trees; localities).—Cory, Publ. Field Mus. Nat. Hist. No. 131, 1909, 463 (straggler to Illinois and Wisconsin).—Dawson and Bowles, Birds Washington, ii, 1909, 504 (Washington; habits; distr.).—Ferry, Auk, xxvii, 1910, 198 (Prince Albert and Quill Lakes, Saskatchewan, breeding).—Sclater, Hist. Birds Colorado, 1912, 174 (Colorado; res.; commonest in summer).—Willett, Pacific Coast Avif., No. 7, 1912, 46 (s. California; Pacific slope; common res.; eggs); No. 21, 1933, 41 (sw. California; fairly common res.; breeds).—Grave and Walker, Birds Wyoming, 1913, 42 (Wyoming; uncommon summer res.).—Tyler, Pacific Coast Avif., No. 9, 1913, 41 (Fresno, Calif.; genl. distr.; breeds); Condor, xxx, 1928, 125, in text (relation to mouse plagues).—Brooks, Auk, xxxiv, 1917, 38 (Chilliwack, British Columbia, res.); Condor, xxix, 1927, 114 (crit.); xxxii, 1930, 64 (specimen with feathered

tarsi).—Howell, Pacific Coast Avif., No. 12, 1917, 54, 106, 109 (Santa Barbara Islands, breeding).—Shelton, Univ. Oregon Bull., new ser., xiv, No. 4, 1917, 20, 27 (wc. Oregon; abund. res.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 110 (monogr.; Iowa).—Harris, Trans. Acad. Sci. St. Louis, xxiii, 1919, 262 (near Kansas City, Mo., Nov. 7, 1913).—Swann, Synopt. List Accip., pt. 2, 1919, 47, part; Synop. Accip., ed. 2, 1922, 77, part; Monogr. Birds Prey, i, 1926, 392, part (monogr.).—Burleigh, Auk, xxxviii, 1921, 554 (Warland, Mont.; common summer res.); xl, 1923, 656 (Clarks Forks, Idaho); xlvi, 1929, 511 (Kirkland, Wash.).—Wetmore, Condor, xxiii, 1921, 60, in text (near Williams, Ariz.).—Gabrielson, Condor, xxiv, 1922, 33, in text (Harney Valley, Oreg.); Auk, xli, 1924, 556 (status, Wallowa County, Oreg.); Condor, xxxiii, 1931, 113 (common; Rogue River Valley, Oreg.); Auk, lxi, 1944, 120 (Alaska; single birds along Kasilof River and n. shore of Tustamina Lake, 2 in Mount McKinley Park and Fairbanks, 4 along Steese Highway, 1 on Yukon at Circle).—Dawson, Birds California, stud. ed., iii, 1923, 1674 (genl.; California).—Townsend, Bull. Amer. Mus. Nat. Hist., xlviii, 1923, 14 (Miraflores, Lower California; spec.).—Wood, Univ. Michigan Mus. Zool. Misc. Publ. 10, 1923, 38 (Mouse River, Turtle Mountain, and around Devils and Sweetwater Lakes, N. Dak.).—de Laubenfels, Wils. Bull., xxxvi, 1924, 169 (Brownsville, Tex.).—Grinnell and Storer, Animal Life Yosemite, 1924, 287 (descr.; distr.; habits; Yosemite).—Hanna, Condor, xxvi, 1924, 148, in text (egg weight).—Nice and Nice, Birds Oklahoma, 1924, 42 (genl.; Oklahoma).—Richards, Condor, xxvi, 1924, 100 (Grass Valley district, Calif.).—Van Denburgh, Condor, xxvi, 1924, 69 (Todos Santos Islands).—Anthony, Proc. California Acad. Sci., ser. 4, xiv, No. 13, 1925, 295 (Guadalupe Island, Mexico).—Gardner, Proc. U. S. Nat. Mus., lxvii, art. 19, 1925, pl. 6 (structure of tongue).—Gloyd, Wils. Bull., xxxvii, 1925, 142 (econ. status; Kansas).—Griscom and Crosby, Auk, xlii, 1925, 535 (status; Brownsville, Tex.).—Lincoln, Auk, xlii, 1925, 60 (near Devils Lake, N. Dak.).—Simmons, Birds Austin Region, 1925, 102 (Austin region, Tex.; habits; nests and eggs; descr., etc.).—Wyman, Condor, xxvii, 1925, 78, in text (catching pigeons).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 102 (descr.; chars.).—Bruner, Condor, xxviii, 1926, 232 (Baboquivari Mountains, Ariz.).—Kelso, Ibis, 1926, 703 (Arrow Lakes, British Columbia; not common breeder).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 297 (Guadalupe Island, Mexico).—Racey, Auk, xliii, 1926, 322 (Sproat Mountain, Alpha Lake; Alpha Lake region. Brit. Columbia); Murrelet, xi, 1930, 70, in text (Alberta; Grand Prairie; rec.).—Taverner, Birds Western Canada, 1926, 193, in text (crit.); Victoria Mem. Mus. Bull. 48, 1927, 3, pls. 1–3 (crit.; plumages, fig.); Nat. Mus. Canada Bull. 50, 1928, 92 (near Belvedere, Alberta; prob. migr.); Birds Canada, 1934, 126, in text (Canada); Condor, xxxviii, 1936, 66, 67, 68, 69, 70, 71, in text (color; range; feathers; hybridizes; meas. crit.).—Williams, Wils. Bull., xxxviii, 1926, 31 (status; Red River Valley, N. Dak.).—Lamb, Condor, xxix, 1927, 70 (Natividad Island).—Lano, Auk, xliv, 1927, 249 (Arkansas).—Linsdale and Hall, Wils. Bull., xxxix, 1927, 96 (Douglas County, Kans.).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 297 (Modoc County, Calif.).—Tanner, Condor, xxix, 1927, 198 (Virgin River Valley, Utah).—Allen, Condor, xxx, 1928, 362, in text (Gold Lake region, n. Sierra Nevada).—DeGroot, Condor, xxx, 1928, 361, in text (eggs).—Larson, Wils. Bull., xl, 1928, 47 (e. McKenzie County, N. Dak.).—Palmer, Condor, xxx, 1928, 272, in text.—Pemberton, Condor, xxx, 1928, 147 (Santa Rosa Island); xxxiii, 1931, 218 (Channel Islands of s. California).—

Ray, Condor, xxx, 1928, 250, in text (eggs).—Bolander and Bryant, Condor, xxxi, 1929, 253, in text (attacking golden eagle).—Hendee, Condor, xxxi, 1929, 25 (Little Snake River, Calif.).—Miller, Taylor, and Swarth, Condor, xxxi, 1929, 77, in text (Tucson, Ariz.; in winter).—Munro, Condor, xxxi, 1929, 113 (food habits).—Sumner, Condor, xxxi, 1929, 85, in text (growth of young); xlii, 1940, 39, in text (Pomona, Calif.; sev. banding returns).—Bancroft, Condor, xxxii, 1930, 27 (José María Cañon, Santa Rosalia, Lower California).—Cookman, Wils. Bull., xlii, 1930, 65 (Santa Cruz Island, Calif.).—Fitzpatrick, Wils. Bull., xlii, 1930, 126 (status, ne. Colorado).—Fuller and Bole, Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 48 (observed, Wyoming).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 187 (distr.; Lassen Peak region, n. California).—Kemsies, Wils. Bull., xlii, 1930, 204 (status, Yellowstone Park, Wyo.).—Baerg, Univ. Arkansas Agr. Exp. Stat. Bull., 258, 1931, 47 (spec., Fayetteville, Ark.).—Bowles and Decker, Murrelet, xii, 1931, 65, in text (Washington; melanistic).—Nice, Birds Oklahoma, rev. ed., 1931, 72 (genl.; Oklahoma); Bird-Banding, x, 1939, 130, in text (Price, Utah; nest.); xi, 1940, 63, in text (banding returns).—Stanford, Auk, xlviii, 1931, 619 (Sevier County, Utah).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 242 (Sonora, Mexico); vii, No. 12, 1932, 131 (Tiburón Island; Sonora, Mexico; winter records).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 22 (Missouri; casual).—Cumming, Murrelet, xiii, 1932, 6 (Vancouver, Brit. Columbia; permanent res.).—Edson, Murrelet, xiii, 1932, 42 (Grand Coulee, Wash.; sev. records).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 153 (distr.; Guatemala).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (eats snakes).—Lowery, Auk, xlix, 1932, 463, in text (spec., Ruston, La.; new to Louisiana).—Roberts, Birds Minnesota, i, 1932, 310 (distr.; habits; Minnesota).—Stanford, Proc. Utah Acad. Sci., ix, 1932, 72 (n. Utah; freq.).—Hall, Murrelet, xiv, 1933, 69 (Astoria, Oreg.; hist.; rec. 1805).—Harrold, Wils. Bull., xlv, 1933, 19, in text (Saskatchewan; sev. May records; 1 egg).—Davis, Murrelet, xv, 1934, 69 (Owyhee County, Idaho; eggs).—Miller, Wils. Bull., xliv, 1934, 159, in text (s. Utah; records).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 8, in text (w. Panhandle of Oklahoma).—Alcorn, Murrelet, xvi, 1935, 17, in text (Washington; food habits).—Dunlavy, Auk, lii, 1935, 428, in text (Los Angeles, Calif.; phytovertical distr.).—Gilman, Condor, xxxvii, 1935, 240, in text (Death Valley, Calif.; freq.).—Huey, Auk, lii, 1935, 251 (Punta Peñascosa, Mexico; sev. seen); Wils. Bull., xlviii, 1936, 122, in text (White Mountains, Ariz.; 11 immature); Auk, lvi, 1939, 321, in text (Mount Trumbull, Ariz.; sev. seen); Trans. San Diego Soc. Nat. Hist., ix, No. 32, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; common; nests).—Long, Univ. Kansas Sci. Bull., xxxvi, 1935, 229 (w. Kansas; Nov.; common); Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas; common winter res. in west; occ. in east).—McCreary, and Mickey, Wils. Bull., xlvii, 1935, 135, in text (se. Wyoming; migr. status).—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 57 (San Juan Islands, Wash.; res.; breeds).—Ewan, Condor, xxxviii, 1936, 84, in text (Plumas County, Calif.; 1 rec.).—Jewett, Murelet, xvii, 1936, 43 (Harney County, Oreg.; common; nests).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 42 (Nevada; res.; common throughout State except perhaps in extreme s. part; breed.; spec.; weight); Amer. Midl. Nat., xix, 1938, 39 (Toyabe Mountains, Nev.; habits; nest; food; spec.).—Monson, Condor, xxxviii, 1936, 175, in text (Papago Indian Reservation, Ariz.; common).—Stoner, Condor, xxxviii, 1936, 124, in text (Cygnus, Calif.; behavior); xli, 1939, 215, in text (Benicia,

Calif.; nest.).—van Rossem, Pacific Coast Avif., No. 24, 1936, 20 (Charleston Mountains, Nev.).—Alexander, Univ. Colorado Stud. Zool., xxiv, 1937, 90 (Boulder County, Colo.; res.; common in summer up to 10,000 feet; infrequent in winter on plains; spec. Univ. Colorado. Mus.).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; permanent res.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 167 (life hist.).—Carter, Condor, xxxix, 1937, 212, in text (San Bernardino County, Calif.; 1 record).—del Campo, Anal. Inst. Biol., viii, 1937, 268 (Hidalgo, Valle del Mezquital).—Griffee and Rapraeger, Murrelet, xviii, 1937, 16 (Portland, Oreg.; nesting records).—Groebbels, Der Vögel, ii, 1937, 104, in text (sex relations), 170 (data on breeding biology), 231, in text (use same nest for years), 232, in text (lays in ravens' nests), 241, in text (eggs in mixed sets).—Saylor, Condor, xxxix, 1937, 175, in text (Nortonville, Calif.; carcass found).—Cowan, Occ. Pap. British Columbia Prov. Mus., No. 1, 1939, 25 (Peace River district, Brit. Columbia, a few breeding records).—Cushing, Condor, xli, 1939, 101, in text (habits).—Hardy, Condor, xli, 1939, 79, in text (Price, Utah; nest. habits).—Hawbecker, Condor, xli, 1939, 83, in text (Monterey, Calif.; carcass).—Kitchin, Murrelet, xx, 1939, 29 (Mount Rainier National Park, abund. fall. migr.; specs.).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 49 (res.; distr.).—Gabrielson and Jewett, Birds Oregon, 1940, 187 (Oregon; common permanent res. in every part; descr.; distr.; nest.; habits; food; photo).—Todd, Birds Western Pennsylvania, 1940, 142 (w. Pennsylvania; descr.; distr.).—Rivers, Condor, xliii, 1941, 65, in text (Nevada; feeding habits).—Marshall and Leatham, Auk, lix, 1942, 39, in text, 41, in text, 43, in text (Great Salt Lake islands).—Dixon, Condor, xlv, 1943, 207 (Kings Canyon National Park, Calif.).—Knowlton and Harmston, Auk, lx, 1943, 589 (Utah; eats crickets and grasshoppers).—Hill, Auk, lxi, 1944, 230 (meas.).—Knox, Auk, lxi, 1944, 23 (Gunnison County, Colo.; fairly common throughout area; seen in Chapanal country near base of Mount Marcellina).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 174 (Kansas; occ. winter res. in east; common farther west).—McAllister and Marshall, Auk, lxii, 1945, 182 (Fremont National Forest, Oreg.).

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Buteo borealis b. var. *calurus* Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 66; Orn. Illinois, i, 1889, 465, 467.—Coues, Birds Northwest, 1874, 353.

Buteo borealis β. calurus Ridgway, Orn. 40th Parallel, 1877, 582 (San Francisco, Calif.; Truckee River, etc., Nev.; Utah); *in* Belding, Proc. U. S. Nat. Mus., i, 1879, 436 (c. California).

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America; map).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 377 (Uinta Basin, Utah).—van Rossem, Auk, lix, 1942, 450, in text (breeding form of Sonora); Occ. Pap. Mus. Zool., Louisiana State Univ., No. 21, 1945, 55 (Sonora; fairly common res.).—Behle, Bull. Univ. Washington, xxxiv, No. 2, 1943, 23, 35 (Washington County, sw. Utah; Pine Valley Mountain region); Condor, xlvi, 1944, 71 (Utah).—Brandt, Alaska Bird Trails, 1943, 357 (Hooper Bay region, Alaska; 3 seen).—Burdick, Condor, xlvi, 1944, 238 (n. Cascade Mountains, Wash.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 100 (California, permanent res.).—McAtee, Wilson Bull., lvi, 1944, 154 (Gulf State migr.).—Davis, Auk, lxii, 1945, 274 (Veracruz).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; spec. coll. in Charlton County, Feb. 20, 1941).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 9 (Nebraska; uncommon migrant).—Packard, Auk, lxii, 1945, 374 (Rocky Mountain National Park, Colo.).—Peyton, Condor, xlvii, 1945, 167, in text (California).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 37 ("Navaho Country," se. Utah and ne. Arizona; common permanent res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Pearse, Murrelet, xxvii, 1946, 6 (Comox, Vancouver Island, rare).—Arvey, Univ. Kansas Pubs., Mus. Nat. Hist., i, 1947, 198 (Idaho).—Hudson, Murrelet, xxviii, 1947, 2 (Blue Mountains area, Wash.).

Buteo borealis lucasanus "Ridgway" Coues, Check List North Amer. Birds, 1873, No. 351b (nomen nudum); Check List North Amer. Birds, ed. 2, 1882, No. 518; Key North Amer. Birds, ed. 2, 1884, 545.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 258, 285 (diagn.; Cape San Lucas, Lower California; type in coll. U. S. Nat. Mus.); Proc. U. S. Nat. Mus., iii, 1880, 194, 220; Nom. North Amer. Birds, 1881, No. 436c; Man. North Amer. Birds, 1887, 233.—Guerney, List Diurn. Birds Prey, 1884, 66.—American Ornithologists' Union, Check-list, 1886, No. 337c; ed. 2, 1895, 131.—Bendire, Life Hist. North Amer. Birds, i, 1892, 217.—Palmer, Auk, xiii, 1896, 342 (as to where first characterized).—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 86 (meas.).—Swann, Synop. Accip., ed. 2, 1922, 77; Monogr. Birds Prey, i, 1926, 393 (monogr.).—Oberholser, Auk, xl, 1923, 680 (peninsula of Lower California).

Buteo borealis c. *lucasanus* Coues, Birds Northwest, 1874, 353 (synonymy).—Gurney, List. Diurn. Birds Prey, 1884, 66.

Buteo lucasanus Sharpe, Hand-list, i, 1899, 256.

Poecilopternis lucasanus Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 266 ("Olema, Marin City, Vancouver").

Poecilopternis montanus Goode, U. S. Nat. Mus. Bull. 20, 1883, 337.—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 266 ("Chaparra-Gebirge" and "Geyser-Felsen," Calif.).

Buteo rufescentior Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 63, in text (w. North America; = rufescent phase).—Griscom, Auk, xxxix, 1922, 107 (query as to identity).—Ridgway, Auk, xl, 1923, 325 (crit.).

Buteo jamaicensis Sutton and Burleigh, Auk, lvii, 1940, 237 text (Veracruz: Las Vigas; mated pair seen).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 12, 1942, 188 (sc. Coahuila; records).—De May, Condor, xliv, 1942, 229 (bones Buena Vista Lake, Calif.).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region, sw. Tamaulipas, 1 seen).—Wilson, Condor, xlvii, 1945, 150 (Kettleman Hills area, Calif.).—Yocom, Murrelet, xxvi, 1945, 20 (Coleville Valley, Wash.).—Fitch, Swenson, and Tillotson, Condor, xlviii, 1946, 205 in text (behavior and food

habits; Madera County, Calif.).—Grove, Murrelet, xxvii, 1946, 33 (Lopez Islands, Wash.).—Gullion, Condor, xlix, 1947, 210 (chased from duck hawk's kill).—Hubbard, Condor, xlix, 1947, 83 (Nov. 27, 1946, feeding on coot; California).

Buteo jamaicensis socorroensis van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 290 (Sonora; Alamos; uncertain ident.).

BUTEO JAMAICENSIS FUERTESI Sutton and Van Tyne

Fuertes's Red-tailed Hawk

Adult (sexes alike).—Similar to the light phase, adult, of *Buteo jamaicensis calurus*, but with the underparts, including the under wing coverts paler, the dark streaks across the breast and flanks greatly reduced, the streaks reduced to a fine shaft line and ochraceous tawny instead of umber or sepia; thighs immaculate or slightly and indistinctly barred with tawny-buff; the barring on rectrices and upper tail coverts much reduced; crown and occiput with more dusky rufous instead of buffy edges to the feathers producing a less variegated appearance; less rufescent on the interscapulars and upper back.

Juvenal.—Similar to that of the light phase of *Buteo jamaicensis calurus*, but somewhat more rufescent above and less spotted below.

Natal down.—Not recorded.

Adult male.—Wing 385–402 (393.2); tail 205–218 (212.1); culmen from cere 25.5–27 (26.1); tarsus 78–91 (87.4); middle toe without claw 43.5–47 (46.1 mm.) (8 specimens).

Adult female.—Wing 425–436 (430.0); tail 220–228 (224); culmen from cere 26–28.5 (27.6); tarsus 91–94 (93.2); middle toe without claw 48–52 (49.8 mm.) (4 specimens, including the type).

Range.—Resident from central Chihuahua to southern Texas (Samuels; Boerne; Glenn Spring; Uvalde; Marathon; Hot Springs; Paisano Peak, 5,000 feet; Corpus Christi; Alpine; Calamity Creek Bridge; Maravillas Creek; Peña Creek; Santiago Mountain); probably also northwestern Texas, Oklahoma, southern New Mexico, and northern Coahuila, to south-central Nuevo León—Cerro Potosí (spec.). In winter has been taken in southwestern Louisiana (Iberville and Cameron) and in Sonora.

Type locality.—Calamity Creek Bridge, 22 miles south of Alpine, Brewster County, Tex.

Buteo borealis calurus (not of Cassin, 1855) American Ornithologists' Union, Check-list, ed. 3, 1910, 157, part; ed. 4, 1931, 66, part.—Swann, Synopt. List Accip., pt. 2, 1919, 47, part; Synop. Accip., ed. 2, 1922, 77, part; Monogr. Birds Prey, i, 1926, 392, part (monogr.).

Buteo jamaicensis borealis Peters, Check-list Birds of World, i, 1931, 231, part.

Buteo jamaicensis fuertesi Sutton and van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 321, 1935, 1 (Calamity Creek Bridge, Tex.); Auk, liii, 1936, 117, in text (Texas); Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 20, 21, in text (Brewster County, Tex.; many records; fairly common res.; descr.; weights; breeding; fig.).—Taverner, Condor, xxxviii, 1936, 70, 71,

in text (crit.; color).—Oberholser, Bird Life Louisiana, 1938, 165 (Louisiana; casual winter res.; records from Cameron Parish, Iberville Parish, and La Barre).—Brandt, Auk, lv, 1938, 287, in text (San Diego County, Calif.; spec.).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 97 (w. Texas; Guadalupe Mountains).—Mengel, Auk, lix, 1942, 104, in text (Colfax, N. Mex.).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 378 (Uinta Basin, Utah).—van Rossem, Auk, lix, 1942, 450, in text (spec.; Chiricahua Mountains, Ariz.; Colonio Pacheco, Chihuahua; Reserve, N. Mex.; breeds se. of the Sierra Madre to w. c. Chihuahua); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 56 (Sonora; rare winter vis.).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).—Behle, Condor, xlvi, 1944, 71 (Utah; reported).—McAtee, Wils. Bull., lvi, 1944, 154 (Gulf State migration).

Buteo jamaicensis furtesi Housse, El Hornero, viii, 1941, 47, in text (breeding range on map; s. New Mexico).

Buteo borealis fuertesi Taverner, Condor, xxxviii, 1936, 70, in text (syn.); Auk, liii, 1936, 360, in text (crit.).

Buteo jamaicensis Baumgartner and Baumgartner, Wils. Bull., lvi, 1944, 210 (Lake Carl Blackwell, Okla.; banding).

BUTEO JAMAICENSIS ALASCENSIS Grinnell

Alaskan Red-tailed Hawk

Adults (sexes alike).—Similar to light-phase adult of *Buteo j. borealis* but smaller, with the abdomen marked chiefly with reddish brown and only sparsely with fuscous and with the rectrices having several narrow wavy black bars.

Juvenal (sexes alike).—Like that of *borealis*, but smaller.

Adult male.—Wing 334–362 (347.6); tail 193.6–243 (217.2); culmen from cere 23.1–26 (24.6); tarsus 80–85.5 (87.6); middle toe without claw 41–47 (43.8 mm.).[29]

Adult female.—Wing 358–363 (361.3); tail 217.9–247 (228); culmen from cere 26–27.6 (26.8); tarsus 77.5–88.8 (83.1); middle toe without claw 45–45.3 (45.1 mm.) (5 specimens).

Range.—Breeds from southeastern Alaska (Yakutat Bay; Chickamun River; Duke of York Island; Baranof Island) to the Queen Charlotte Islands, British Columbia. Winter limits unknown.

Type locality.—Glacier Bay, Alaska.

Buteo borealis calurus (not *Buteo calurus* Cassin) Bean, Proc. U. S. Nat. Mus., v, 1882, 162 (Baranof Island, Alaska, June).—Osgood, North Amer. Fauna, No. 21, 1901, 42 (Cumshawa Inlet, Queen Charlotte Islands, June 22).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 78, 79, in text (Chitina River region, Alaska).—American Ornithologists' Union, Check-list, ed. 4, 1931, 66, part (se. Alaska).—Jewett, Murrelet, xxiii, 1942, 69 (Eagle and Chilkat Rivers, se. Alaska).

Buteo borealis alascensis Grinnell, Univ. California Publ. Zool., v, 1909, 211 (Glacier Bay, Alaska; coll. Mus. Vert. Zool.).—American Ornithologists' Union, Auk, xxvi, 1909, 296 (Check-list No. 337 *e*); Check-list, ed. 3, 1910,

[29] Seven specimens from Alaska and northwestern British Columbia.

158.—Swarth, Univ. California Publ. Zool., vii, 1911, 61 (Duke of York Island and Chickamun River, Alaska).—Swann, Synopt. List Accip., pt. 2, 1919, 48; Synop. Accip., ed. 2, 1922, 78; Monogr. Birds Prey, i, 1926, 395 (monogr.).—Ridgway, Auk, xl, 1923, 325, in text.—Taverner, Birds Western Canada, 1926, 193, in text; Victoria Mem. Mus. Bull. 48, 1927, 3 (crit.; tax.); Auk, liii, 1936, 360, in text (crit.); Condor, xxxviii, 1936, 69, 71, in text (crit.; color).—Bailey, Auk, xliv, 1927, 203 (Big John Bay, Keka Strait, Mad Bay, Chickagof Island, etc., se. Alaska).—Cumming, Murrelet, xii, 1931, 16 (Queen Charlotte Islands, British Columbia; spec.).—Huey, Condor, xl, 1938, 106, in text (Alaska; Glacier Bay; type spec.).

Buteo jamaicensis alascensis Peters, Check-list Birds of World, i, 1931, 231 (distr.).—Housse, El Hornero, viii, 1941, 47, in text (se. Alaska; on map).—American Ornithologists' Union, Auk, lxi, 1944, 445.

(?) *Buteo rufescentior* Salvin and Godman, Biol. Centr. Amer.; Aves, iii, sig. 8, Nov. 1900, 63, in text, part (Sitka).—Griscom, Auk, xxxix, 1922, 107, part (query as to identity).—Ridgway, Auk, xl, 1923, 325, part (crit.).

Buteo borealis subsp? Brooks, Auk, xl, 1923, 221 (Porcher Island, Brit. Columbia).

Buteo borealis Shortt, Contr. Roy. Ontario Mus. Zool., No. 17, 1939, 11 (Yakutat Bay, Alaska; 1 record).

BUTEO JAMAICENSIS KRIDERII Hoopes

Krider's Hawk

Adult (sexes alike).—Similar to that of *Buteo jamaicensis borealis*, but with the upperparts generally, especially the top of the head, nape, back, upper wing coverts, and upper tail coverts, very much and noticeably streaked, spotted, or otherwise marked, with white, the white on the interscpaulars washed with pale tawny; the upperparts with little reddish brown; in extremely light colored birds the top and sides of the head may be practically pure white; underparts much whiter, less marked with brownish than any of the other races of the species, sometimes immaculate white; thighs usually, but not always, immaculate; tail variable—pure white subterminally barred with fuscous-black and with several small, incomplete bars of the same along the shaft, or with a single mikado brown subterminal band; or pale avellaneous to sayal brown, tipped with white, subterminally banded with fuscous-brown, with or without additional similar but narrower bars on the rest of the length of the rectrices.

The males average paler than females, but the difference is not constant.

Juvenal (sexes alike).—Similar to that of *Buteo jamaicensis borealis*, but with the entire upperparts abundantly spotted and streaked with white (the feathers of the crown, nape, and interscapulars broadly edged laterally with white; the scapulars, upper wing coverts, back, rump, and upper tail coverts broadly barred and tipped and narrowly edged with white); underparts averaging less abundantly marked with fuscous; rectrices barred as in juvenal *borealis*, but the pale color variable—deep olive-buff, wood brown, hair brown, or deep grayish olive.

Natal down.—Buffy white to pale grayish white.

Adult male.—Wing 352–400 (379.5); tail 204–232 (221.3); culmen from cere 23–27.5 (25.6); tarsus 81–90.5 (84.9); middle toe without claw 39.5–45.5 (42.5 mm.) (8 specimens).

Adult females.—Wing 393–432 (413.5); tail 219–248 (237.5); culmen from cere 24–30 (26.8); tarsus 81.5–94 (87.5); middle toe without claw 40–49.5 (46.5 mm.) (10 specimens).

Range.—Breeds from southeastern Manitoba (Oak Lake, Riding Mountains), North Dakota, and western and south-central Minnesota, rarely to extreme western Ontario (Malachi); south to Wyoming (Black Hills), eastern Colorado, and to Nebraska.

Winters from South Dakota and southern Minnesota south through the Great Plains west of the Mississippi as far as Arizona (the San Francisco Mountains); New Mexico (near Espanola), central and eastern Texas, and Louisiana, eastward along the Gulf coast to Mississippi. Recorded (uncertainly) from Durango and Zacatecas, Mexico.

Casual in Wisconsin and Illinois; accidental in South Carolina and Georgia (St. Marys and Sapelo Island).

Type locality.—Winnebago County, Iowa.

Buteo borealis (not *Falco borealis* Gmelin) ? Blakiston, Ibis, 1861, 318 (forks of Saskatchewan).—Trippe, Proc. Essex Inst., vi, 1871, 113 (Minnesota).—McChesney, U. S. Geol. and Geogr. Surv. Terr., Bull. 3, 1877, 684.

Buteo borealis var. *kriderii* Hoopes, Proc. Acad. Nat. Sci. Philadelphia, xxv, 1873, 238, pl. 5 (Winnebago County, Iowa; coll. Acad. Nat. Sci. Philadelphia).

Buteo borealis kriderii American Ornithologists' Union, Check-list, 1886, No. 337a; ed. 2, 1895, 130; ed. 3, 1910, 157.—Ridgway, Man. North Amer. Birds, 1887, 233.—Brewster, Auk, vi, 1889, 70 (Sapelo Island, Ga., Feb. 16, 1888).—Goss, Hist. Birds Kansas, 1891, 261 (Kansas; descr.; spec.).—Bendire, Life Hist. North Amer. Birds, i, 1892, 212.—Hatch, Notes Birds Minnesota, 1892, 186, 452 (Minnesota; spec.; records).—Cooke, Birds Colorado, 1897, 74 (res. on plains).—Beyer, Proc. Louisiana Soc. Nat. for 1897–99 (1900), 99 (Louisiana in winter).—Cary, Auk, xviii, 1901, 233 (Black Hills, Wyo.; rare).—Bailey, Handb. Birds Western United States, 1902, 156 (descr.; distr.).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 63 (Wisconsin; habits).—Arnow, Auk, xxi, 1904, 277 (St. Marys, Ga., Feb. 3, 1904).—Woodruff, Chicago Acad. Sci. Bull. 6, 1907, 94 (Des Plaines River, 30 miles nw. of Chicago, July 25, 1876).—Widmann, Birds Missouri, 1907, 95.—Beyer, Allison, and Kopman, Auk, xxv, 1908, 441 (Louisiana, rare winter vis.).—Cory, Publ. Field Mus. Nat. Hist. No. 131, 1909, 462 (casual in Illinois and Wisconsin).—Swann, Monogr. Birds Prey, i, 1926, 391 (monogr.).—[Arthur], Birds Louisiana, 1931, 198 (descr.; stat.; Louisiana).—Anderson, Condor, xxxvi, 1934, 79, in text (Elden Mountain, Ariz.; spec.).—Taverner, Condor, xxxviii, 1936, 67 through 71, in text (crit.; distr.; color; hybridizing); Auk, liii, 1936, 360, in text (crit.).

Buteo borealis krideri Coues, Check-list North Amer. Birds, 1873, No. 351c; Key North Amer. Birds, ed. 2, 1884, 545.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 284; Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 436.—Roberts and Benner, Bull. Nuttall Orn. Club, v, 1880, 17 (nesting; Minnesota).—Goss,

Auk, i, 1884, 100; iii, 1886, 114 (Fort Wallace, Kans.; Oct. 12–16, 1883).—Gurney, List Diurn. Birds Prey, 1884, 66.—Coale, Auk, ii, 1885, 109 (Half Day, Cook County, Ill., July 25, 1876).—Peabody, Auk, xii, 1895, 11 (=16), part (Steele, Rice, and Nicollet Counties, Minn.; nesting habits; descr. nest and eggs).—Lantz, Trans. Kansas Acad. Sci., 1896–97 (1899), 255 (Kansas; rare; probably resident).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 247 (Iowa; habits).—Woodruff, Auk, xxv, 1908, 199 (Shannon County, Mo., Apr. 10, 1907).—American Ornithologists' Union, Check-list, ed. 3, 1910, 157; ed. 4, 1931, 66.—Visher, Auk, xxviii, 1911, 11 (Harding County, S. Dak., breeding).—Isely, Auk, xxix, 1912, 31 (Sedgwick County, Kans.; rare summer res.).—Sclater, Hist. Birds Colorado, 1912, 175 (Colorado; e. plains and foothills).—Fleming, Auk, xxx, 1913, 227 (Pickering, Ontario, Aug. 19, 1901).—Grave and Walker, Birds Wyoming, 1913, 42 (Wyoming; uncommon summer res.).—Lincoln, Proc. Colorado Mus. Nat. Hist., 1915, 6 (Yuma County, Colo., Nov. 1909); Auk, xlii, 1925, 60 (near Napoleon, N. Dak.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 108 (monogr.; Iowa).—Jensen, Auk, xxxv, 1918, 345 (Wahpeton, N. Dak.; breeding).—Harris, Trans. Acad. Sci. St. Louis, xxiii, 1919, 262 (Kansas City, Mo., Oct. 16, 1898; Oct. 15, 1916).—Swann, Synopt. List Accip., pt. 2, 1919, 47; Synop. Accip., ed. 2, 1922, 77.—Over and Thoms, Birds South Dakota, 1921, 84 (South Dakota).—Saunders, Pacific Coast Avif., No. 14, 1921, 62 (Montana; spec.; nest.).—Taylor, Auk, xxxix, 1922, 273 (near Madison, Wis., 1 spec., spring 1921); xliii, 1926, 253 (near Espanola, N. Mex.).—Wood, Univ. Michigan Mus. Zool. Misc. Publ. No. 10, 1923, 38 (Grafton, N. Dak., Sept. 6, 1900); Auk, xlii, 1925, 146 (North Dakota).—Gloyd, Wils. Bull., xxxvii, 1925, 141 (econ. stat.; Kansas).—Griscom and Crosby, Auk, xlii, 1925, 534 (stat.; Brownsville, Tex.).—Jensen, Auk, xliii, 1926, 253 (near Espanola, N. Mex.).—Lano, Auk, xliii, 1926, 368 (near Fayetteville, Ark.).—Taverner, Birds Western Canada, 1926, 193, in text (plumage; distr.); Victoria Mem. Mus. Bull. 48, 1927, 4, pls. 1–3 (plumage; crit.); Nat. Mus. Canada Bull. 50, 1928, 92 (near Belvedere, Alberta; migr.); Birds Canada, 1934, 126, in text (Canada; descr.); Condor, xxxviii, 1936, 68, on map (distr.).—Williams, Wils. Bull., xxxviii, 1926, 31 (status; Red River Valley, ne. North Dakota).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 79, in text (Teslin Lake, Yukon Territory; spec.).—Fitzpatrick, Wils. Bull., xlii, 1930, 126 (ne. Colorado; stat.).—Baerg, Arkansas Agr. Exp. Sta. Bull. No. 258, 1931, 47 (descr.; distr.).—Nice, Birds Oklahoma, rev. ed., 1931, 72 (genl.; Oklahoma).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 22 (Missouri; casual).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (eats snakes).—Hargrave, Condor, xxxiv, 1932, 217 (San Francisco Mountains, Ariz.).—Roberts, Birds Minnesota, i, 1932, 310 (distr.; habits; Minnesota).—Alexander, Univ. Colorado Stud. Zool., xxiv, 1937, 87 (Boulder County, Colo.; hypothetical).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 165 (life hist.).—Murphey, Contr. Charleston Mus., ix, 1937, 12 (Savannah Valley, Ga.; spec. taken on Georgia side of Savannah River).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas, occas. winter res.).—Todd, Birds Western Pennsylvania, 1940, 142, in text (w. Pennsylvania).—Hill, Auk, lxi, 1944, 280 (meas.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 174 (Kansas; occas. in winter).

Buteo borealis c. *Krideri* Ridgway, Orn. Illinois, i, 1889, 465, 468.

Buteo krideri Gurney, Cat. Birds Prey, 1894, 24.—Sharpe, Hand-list, i, 1899, 256.

Buteo jamaicensis kriderii Peters, Check-list Birds of World, i, 1931, 231 (distr.).

Buteo jamaicensis krideri VAN TYNE, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 9, in text (Michigan; intermediate toward *borealis*).—HOUSSE, El Hornero, viii, 1941, 47, in text (breeding range on map).—GREEN, GRIFFIN, ODUM, STODDARD, and TOMKINS, Birds Georgia, 1945, 34 (Georgia; 3 records).—HAECKER, MOSER, and SWENK, Nebraska Bird Rev., xiii, 1945, 9 (Nebraska).

BUTEO JAMAICENSIS UMBRINUS Bangs

FLORIDA RED-TAILED HAWK

Adult (sexes alike).—Like that of *B. j. borealis*, but with the rectrices usually with several incomplete dark bands along the shaft.

Juvenal (sexes alike).—Indistinguishable from that of *B. j. borealis*.

Natal down.—Like that of *B. j. borealis*.

Adult male.—Wing 398–400 (398.8); tail 222.5–227 (224.9); culmen from cere 26.5–28.5 (27.5); tarsus 90–95.5 (92.9); middle toe without claw 41.5–49 (46.8 mm.) (4 specimens from Florida).

Adult female.—Wing 373–432 (409.7); tail 218.5–242 (233.4); culmen from cere 28–33 (30.4); tarsus 85–91.5 (89.2); middle toe without claw 45–52 (49 mm.) (6 specimens from Florida).

Range.—Resident in peninsular Florida north at least to Tampa Bay and the Kissimmee Prairie, possibly to San Mateo and Cedar Keys; also the Bahamas (Abaco; Andros; New Providence; Inagua, and, probably, Grand Bahama)[30] where apparently very rare. Accidental in eastern North Carolina (Rocky Mount).

Type locality.—Myakka, Manatee County, Fla.

Buteo borealis CORY, Birds Bahama Islands, 1880, 131 (New Providence; Inagua); List Birds West Indies, 1885, 22, part (Bahamas); rev. ed., 1886, 22, part (Bahamas); Auk, iv, 1887, 39, part (Bahamas); Birds West Indies, 1889, 197, part (Bahamas); Auk, viii, 1891, 350 (Abaco Island, Bahamas, June); Cat. West Indian Birds, 1892, 99, part (Bahamas).—SCOTT, Auk, ix, 1892, 212 (Caloosahatchie River, Fla., breeding).

Buteo borealis umbrinus BANGS, Proc. New England Zool. Club, ii, 1901, 68 (Myakka, Manatee County, Fla.; coll. E. A. and O. Bangs).—BONHOTE, Ibis, 1902, 296 (Little Abaco Island, Bahamas; crit.; habits; descr. nests and eggs).—PETERS, Bull. Mus. Comp. Zool., lxi, 1917, 400, part (meas.).—OBERHOLSER, Auk, xxxv, 1918, 207, part.—SWANN, Synopt. List Accip., pt. 2, 1919, 48 part; Synop. Accip., ed. 2, 1922, 79, part; Monogr. Birds Prey, i, 1926, 396, part (monogr.).—BANGS, Bull. Mus. Comp. Zool., lxx, 1930, 188 (type in Mus. Comp. Zool.).—AMERICAN ORNITHOLOGISTS' UNION, Check-list, ed. 4, 1931, 66 (distr.).—DUMONT, Auk, xlviii, 1931, 250 (e. of Ozona, Fla.).—HOWELL, Florida Bird Life, 1932, 175 (genl.; Florida).—TAVERNER, Aux, liii, 1936, 360, in text (crit.).—BENT, U. S. Nat. Mus. Bull. 167, 1937, 178 (life hist.).—MURPHEY, Contr. Charleston Mus., ix, 1937, 12 (Savannah Valley, Ga.; spec.).—BRIMLEY, Auk, lviii, 1941, 106, in text (Nashville, N. C.).—PEARSON, BRIMLEY, and BRIMLEY, Birds North Carolina, 1942, 94 (North Carolina; 1 rec.).—HILL, Aux, lxi, 1944, 230, 231 (meas.).

[30] There is still some doubt as to the subspecific identity of the Bahama birds, but it seems that they belong here. Only one Bahaman specimen has been examined (from Abaco).

Buteo borealis (subsp.?) Howell, Auk, xxxviii, 1921, 256 (Royal Palm Hammock, Fla.; uncommon).

Buteo jamaicensis umbrinus Peters, Check-list Birds of World, i, 1931, 231, part.—Bond, Birds West Indies, 1936, 66, in text (West Indies; descr.; distr.), 414; Check List Birds West Indies, 1940, 22 (West Indies; Bahamas, not common); ed. 2, 1945, 23.—Housse, El Hornero, viii, 1941, 47, in text, part (Florida).

BUTEO JAMAICENSIS SOLITUDINIS Barbour

Cuban Red-tailed Hawk

All plumages similar to those of *Buteo jamaicensis umbrinus*, but smaller.

Adult male.—Wing 357–382; tail 213–230; culmen from cere 27.5; tarsus 87–90; middle toe without claw 45.2–45.5 mm. (2 specimens).

Adult female.—Wing 397–412; tail 250–252; culmen from cere 29.2–30; tarsus 88–88.5; middle toe without claw 45–46 mm. (2 specimens).

Range.—Resident in Cuba and the Isle of Pines.

Type locality.—Soledad, near Cienfuegos, Cuba.

Falco borealis (not of Gmelin) Lembeye, Aves Cuba, Suppl. (1850), 18, pl. 1, fig. 1

Buteo borealis Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).—Lembeye, Mem. Real. Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cuba).—Cabanis, Journ. für Orn., ii, 1854, lxxxii (Cuba).—Brewer, Proc. Boston Soc. Hist., vii, 1860, 306 (Cuba).—Gundlach, Journ. für Orn., ix, 1861, 402 (Cuba; crit.); Rep. Fisico Nat. Cuba, i, 1865–1866, 233; Journ. für Orn., xix, 1871, 365 (Cuba; habits); Cat. Aves Cubana, Anales Soc. Esp. Hist. Nat., ii, 1873, 99; Contr. Orn. Cubana, "1876" (=1873), 41; Orn. Cubana, 1895 ed., 19.—Cory, List Birds West Indies, 1885, 22, part (Cuba); rev. ed., 1886, 22, part (Cuba); Auk, iv, 1887, 39, part (Cuba); Birds West Indies, 1889, 197, part (Cuba); Cat. West Indian Birds, 1892, 99, part (Cuba).

Buteo (Poecilopternis) borealis Gundlach, Journ. für Orn., ix, 1861, 322 (Cuba).

Buteo borealis calurus (not *Buteo calurus* Cassin) Chapman, Bull. Amer. Mus. Nat Hist., iv, 1892, 294 (s. Cuba; crit.).

Buteo borealis umbrinus Peters, Bull. Mus. Comp. Zool., lxi, 1917, 400, part (meas.).—Oberholser, Auk, xxxv, 1918, 207, part.—Swann, Synopt. List Accip., pt. 2, 1919, 48, part; Synop. Accip., ed. 2, 1922, 79, part.—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 46 (Lomas de los Acostas and Pinar del Río, w. Cuba).—Swann, Monogr. Birds Prey, i, 1926, 396, part.—Rutter, Ardea, xxiii, 1934, 116 (Cuba; Soledad).

Buteo jamaicensis umbrinus Peters, Check-list Birds of World, i, 1931, 231, part.

Buteo borealis solitudinis Barbour, Occ. Pap. Boston Soc. Nat. Hist., viii, 1935, 207 (Soledad, near Cienfuegos, Cuba).—Stone, Auk, lii, 1935, 479, in text.—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 34 (Cuba).

Buteo jamaicensis solitudinis Bond, Check List Birds West Indies, 1940, 22 (West Indies; Cuba (rather rare); Isle of Pines, very rare); ed. 2, 1945, 22; Proc. Acad. Nat. Sci. Philadelphia, xciv, 1942, 91 (Cuba; numerous in wooded areas).

BUTEO JAMAICENSIS JAMAICENSIS (Gmelin)

JAMAICAN RED-TAILED HAWK

Adult (sexes alike).—Similar to that of *B. j. alascensis*, but with abdomen heavily marked with fuscous or fuscous-black, not with reddish brown, and with the rectrices unbarred except for a single subterminal band.

Juvenal (sexes alike).—Similar to that of *B. j. alascensis*, but with the pale interspaces of the rectrices paler, very distinctly lighter than the dark bars and with a slight rufous wash.

Natal down.—Like that of *B. j. borealis*.

Adult male.—Wing 330–339 (335.2); tail 189–201.5 (194.7); culmen from cere 25.5–27 (26); tarsus 80.5–86 (82.1); middle toe without claw 37.7–46 (43 mm.).[31]

Adult female.—Wing 350–371 (365.8); tail 203.5–214 (209); culmen from cere 27–29 (28); tarsus 81.5–86.5 (83.4); middle toe without claw 42–47 (45 mm.).[32]

Range.—Resident in Jamaica; Haiti; Santo Domingo; Puerto Rico; Vieques; Culebra; St. Croix; St. Thomas; St. Jan; Jost van Dyke; Tortola Island; Nevis; and possibly Montserrat; also islets off the Haitian coast (Gonave, Petit Cayemite, Île à Vache, and Beata). The birds of St. Kitts probably belong to this race also. Recorded (probably erroneously) from Barbados.

Type locality.—Jamaica (*ex* Latham).

Falco jamaicensis GMELIN, Syst. Nat., i, pt. 1, 1788, 266 (Jamaica; based on *Cream-coloured Buzzard* Latham, Synop. Birds, i, 1781, 49=albinistic specimen).—LATHAM, Index Orn., i, 1790, 24.—DAUDIN, Traité d'Orn., ii, 1800, 157.

[31] Five specimens as follows:

Locality	Number of specimens	Wing	Tail	Culmen	Tarsus	Middle toe
		mm.	*mm.*	*mm.*	*mm.*	*mm.*
Haiti	3	336–339	190–196.5	25.5	81.5–86	44–46.
Puerto Rico	1	330	201.5	27	80.5	42.8.
Jamaica	1	333	189	26	80.5	37.7.

[32] Six specimens as follows:

Locality	Number of specimens	Wing	Tail	Culmen	Tarsus	Middle toe
		mm.	*mm.*	*mm.*	*mm.*	*mm.*
Haiti	3	350–367	203.5–211	27–29	81.5–84	42–46.5.
Dominican Republic	1	371	208.5	28.5		46.
Puerto Rico	1	370	214	28	86.5	42.5.
Jamaica	1	368	209	27.5	81.5	47.

Buteo fulvus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 472 ("grandes iles Antilles ou elle se tient sur les montagnes"; cites *Falco jamaicensis* Latham).

Buteo borealis (not *Falco borealis* Gmelin) Gosse, Birds Jamaica, 1847, 11; Illustr. Birds Jamaica, 1849, pl. 2.—Gray, List Spec. Brit. Mus., ed. 2, 1848, 34, part (Jamaica; Nevis); Hand-list, i, 1869, 7, No. 46, part.—Albrecht, Journ. für Orn., 1862, 203 (Jamaica).—March, Proc. Acad. Nat. Sci. Philadelphia, 1863, 151 (Jamaica).—(?) Gundlach, Journ. für Orn., 1874, 310 (Puerto Rico); 1878, 158 (Puerto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 159 (Puerto Rico).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 188, part (Jamaica; Nevis).—Newton and Newton, Handb. Birds Jamaica, 1881, 110.—Cory, List Birds West Indies, 1885, 22, part; rev. ed., 1886, 22, part; Auk, iv, 1887, 39, part (Jamaica; Puerto Rico?); Birds West Indies, 1889, 197 part (Jamaica; Puerto Rico); Auk, viii, 1891, 48 (St. Christopher); Cat. West Indian Birds 1892, 99, part (Jamaica; Haiti; Puerto Rico?).—Scott, Auk, ix, 1892, 126 (Jamaica; habits).—(?) Bowdish, Auk, xix, 1902, 361 (Puerto Rico; breeding).—Sclater, Rev. List Birds Jamaica, 1910, 13.—(?) Wetmore, U. S. Dept. Agr. Bull. 326, 1916, 33 (Puerto Rico; res.; habits; food); Auk, xxxiv, 1917, 57 (Culebra Island).—Struthers, Auk, xl, 1923, 472 (near Mayagüez, Puerto Rico, breeding).

Buteo borealis jamaicensis Bangs and Kennard, List Birds Jamaica, 1920, 5 (common res.).—Swann, Synop. Accip., ed. 2, 1922, 79 (Jamaica; Santo Domingo; Puerto Rico?); Monogr. Birds Prey, i, 1926, 396 (monogr.).—Wetmore, New York Acad. Sci., ix, pt. 3, 1927, 320 (genl.; Puerto Rico; Virgin Islands).—Danforth, Auk, xlv, 1928, 482 (Summer; Hope Gardens; Constant Spring, etc., Jamaica); Journ. Dept. Agr. Puerto Rico, xiv, 1930, 114 (St. Croix; St. Thomas; St. Jan; Tortola; Virgin Islands); xv, 1931, 47 (Lajas; Rincón; Añasco; Mayagüez; Mariseo; etc., Puerto Rico).—Bond, Proc. Acad. Nat. Sci. Philadelpha, lxxx, 1928 (1929), 43 (distr.; habits; Haiti); Auk, xlvii, 1930, 270 (St. Croix, Virgin Islands).—Beatty, Journ. Dept. Agr. Puerto Rico, xiv, 1930. 138 (St. Croix; Constitution Hill; breeds).

Buteo jamaicensis jamaicensis Wetmore, Auk, xlvii, 1930, 483 (Rabié paintings; Hispaniola); Proc. U. S. Nat. Mus., lxxxi, art. 2, 1932, 7, 14 (Gonave Island, Petite Cayemite Island; Haiti).—Peters, Check-list Birds of World, i, 1931, 231 (distr.).—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 110 (habits; distr.; etc.; Hispaniola).—Wetmore and Lincoln, Proc. U. S. Nat. Mus., lxxxii, art. 25, 1933, 10 (Île à Vache), 13 (Beata Island), 21 (Haiti and Dominican Republic; several localities).—Danforth, Journ. Agr. Univ. Puerto Rico, xix, 1935, 446 (Virgin Islands; Culebra, Cayo Norte, and Jost van Dyke), 466 (Virgin Islands localities); xxi, 1937, 542 (Vieques Island; Punta Salina, Ensenada Honda, and Compana); xxii, 1938, 506 (Saba; sev. specs.; meas.); xxiii, 1939, 53 (Montserrat; doubtful).—Bond, Birds West Indies, 1936, 65, 66, 414, (West Indies; distr.; descr.); Check List Birds West Indies, 1940, 22; ed. 2, 1945, 22 (West Indies; distr.).—Housse, El Hornero, viii, 1941, 47, in text (distr.).

Buteo jamaicensis Wetmore, Auk, lv, 1938, 53, in text (Puerto Rico; Ponce; bones).

Buteo tropicalis Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, lxi, 1909, 357 (San Lorenzo, s. side Samana Bay, Santo Domingo; coll.).—Swann, Synopt. List Accip., pt. 2, 1919, 49.

BUTEO JAMAICENSIS FUMOSUS Nelson

Tres Marías Red-tailed Hawk

Adult (sexes alike).—Similar to that of *B. j. socorroensis*, but with head and neck plain sooty brown, the throat more or less streaked with white; chest and breast not white medially, but cinnamon-brownish, marked with black shaft streaks, and with lighter spots on median portion; thighs heavily barred with brown; sides and flanks more rufous; upperparts much more uniform dusky, the longer scapulars without distinct, if any, pale spotting.

Juvenal.—Similar to that of *B. j. borealis*, but slightly paler, more grayish earth brown above and much more heavily streaked on the breast and abdomen; the thighs heavily barred with dark brown and washed with pinkish cinnamon.

Natal down.—Not known.

Adult male.—Wing 368–370; tail 228–230; culmen from cere 27–28; tarsus 86–87; middle toe without claw 43–44 mm. (2 specimens).

Adult female.—Wing 395; tail 235.5; culmen from cere 30; tarsus 87; middle toe without claw 46.5 mm. (1 specimen).

Range.—Resident in the Tres Marías Islands, Mexico.

Type locality.—María Madre Island.

Buteo borealis var. *montanus* (not *Buteo montanus* Nuttall) Lawrence, Proc. Boston Soc. Nat. Hist., ii, 1874, 301, part (Tres Marías Islands).

Buteo borealis var. *calurus* (not *Buteo calurus* Cassin) Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 301, part (Tres Marías Islands).

Buteo borealis, var. *costaricensis* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 285, footnote, part (descr. supposed young from Tres Marías Islands).

Buteo borealis fumosus Nelson, Proc. Biol. Soc. Washington, xii, 1898, 7 (María Madre Island, Tres Marías group, nw. Mexico; coll. U. S. Nat. Mus.); North Amer. Fauna, No. 14, 1899, 37 (Tres Marías Islands; descr. young).—Swann, Synopt. List Accip., pt. 2, 1919, 48; Synopsis Accip., ed. 2, 1922, 80; Monogr. Birds Prey, i, 1926, 397 (monogr.).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 297 (María Madre, Mexico).

Buteo fumosus Sharpe, Hand-list, i, 1899, 256.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 65.

Buteo jamaicensis fumosus Peters, Check-list Birds of World, i, 1931, 232 (distr.).—Housse, El Hornero, viii, 1941, 47, in text (breeding range, on map).

BUTEO JAMAICENSIS SOCORROENSIS Ridgway

Socorro Red-tailed Hawk

Adult (sexes alike).—Similar to the pale phase of *B. j. calurus*, but with larger and stouter feet; the underparts more uniformly pale cinnamon-rufous or vinaceous-cinnamon, with the dusky markings on the sides and abdomen smaller and fewer; the thighs deep vinaceous-cinnamon indistinctly barred with paler, vinaceous-buff; scapulars blotched with vinaceous-cinnamon.

Juvenal.—Not known.

Natal down.—Not known.

Adult male.—Wing 368–385; tail 211.5–216; culmen from cere 24.7–25; tarsus 83–87; middle toe without claw, 42–43.7 mm. (2 specimens including the type).

Adult female.—Wing 415; tail 232; culmen from cere 29.5; tarsus 90; middle toe without claw 50 mm. (1 specimen).

Range.—Resident in Socorro Island, off the west coast of Mexico.

Type locality.—Socorro Island.

Buteo borealis var. *montanus* (not *Buteo montanus* Nuttall) Lawrence, Proc. Boston Soc. Nat. Hist., 1871, 42 (Socorro Island, Revillagigedo Group, nw. Mexico).

Buteo borealis var. *costaricensis* (not of Ridgway) Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 302 (Socorro Island).

Buteo borealis socorroensis Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 194, 220 (nomen nudum; Socorro Island, Revillagigedo Group, nw. Mexico); Nom. North Amer. Birds, 1881, No. 436 *d*; *in* Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 64 (described!).—Townsend, Proc. U. S. Nat. Mus., xiii, 1890, 135 (Socorro Island).—Nelson, Proc. Biol. Soc. Washington, xii, 1898, 7, in text (Socorro Island).—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 85, part only? (crit.; meas.; spec. from Nicasio, Marin County, Calif., and one from Alamos, Sonora, referred to this subspecies).—Swann, Synopt. List Accip., pt. 2, 1919, 48; Synop. Accip., ed. 2, 1922, 80; Monogr. Birds Prey, i, 1926, 397 (monogr.).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 297 (Socorro Island; Graysons Cove, Mexico; nest; plumage).

Buteo socorroensis Gurney, List Diurn. Birds Prey, 1884, 66; Cat. Birds Prey, 1894, 24.—Anthony, Auk, xv, 1898, 316 (Socorro Island).—Sharpe, Hand-list, i, 1899, 256.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 64.

Buteo jamaicensis socorroensis Peters, Check-list Birds of World, i, 1931, 232 (distr.).—Housse, El Hornero, viii, 1941, 47, in text (breeding range, on map).

BUTEO JAMAICENSIS COSTARICENSIS Ridgway

Central American Red-tailed Hawk

Adult (sexes alike).—Similar to that of *B. j. borealis*, but with the thighs, lower abdomen, and under tail coverts distinctly washed with pale cinnamon; the rectrices averaging paler, never dark hazel, but cinnamon to light orange-cinnamon; the upperparts with little or no rufous spotting; bill black, bluish on basal half of mandible and next to cere; cere and edge of gape waxy greenish yellow; iris brown; tarsi and feet bright yellow; claws black.

Juvenal (sexes alike).—Similar to that of *B. j. borealis*, but with the tail pale tawny-cinnamon, not grayish, barred with fuscous-black; with the nape, upper back, and scapulars more spotted with white, and with the thighs heavily spotted with brown, as in some examples of *calurus*.

Natal down.—Not recorded.

Adult male.—Wing 368–377 (372.2); tail 207–216.5 (213.6); culmen from cere 25–26.7 (25.4); tarsus 87–90.5 (88.6); middle toe without claw 43.5–44.5 (44.0 mm.).[33]

Adult female.—Wing 397–410 (402.2); tail 222–239 (229.2); culmen from cere 26–28 (26.8); tarsus 85–93.3 (87.1); middle toe without claw 44–47.5 (46.2 mm.).[34]

Type locality.—Costa Rica.

Range.—Resident in the highlands of Central America from southern Mexico (Oaxaca, Guerrero, Nayarit, Mexico), Guatemala (San Lucas and Panajachel), and El Salvador (Mount Cacaguatique, Los Esesmiles, Volcan de San Miguel, San Salvador, Divisadero, etc.) to western Panama (Veraguas; Changuinola; Boquete, Barriles, Chiriquí). The birds of southern Mexico vary in the direction of *calurus*; birds from the Isthmus of Tehuantepec are close to typical *costaricensis*.

Buteo borealis (not *Falco borealis* Gmelin) Sclater and Salvin, Proc. Zool. Soc. London, 1864, 369 (Panama); Nom. Av. Neotr., 1873, 118, part (Panama; Central America, part).—Salvin, Proc. Zool. Soc. London, 1870, 215 (Chitra, Calobre, and Volcán de Chiriquí, Panama).—Salvin and Godman, Biol. Centr.-Amer. Aves, iii, 1900, 61, part (San José, Los Tabacales, Cartago, San Isidro, Santa María, and La Palma de Nicoya, Costa Rica; Volcán de Chiriquí, Chitra, and Calobre, Panama; Volcán de Chinandega, Matagalpa, and San Juan del Sur, Nicaragua).

Buteo borealis var. *montanus* (not *Buteo montanus* Nuttall) Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (San José and Los Tabacales, Costa Rica).—Frantzius, Journ. für Orn., 1869, 210 (Costa Rica; crit.).

Buteo montanus Cabanis, Journ. für Orn., 1869, 210 (Costa Rica; crit.).

Buteo borealis subsp. a. *Buteo montanus* Sharpe, Cat. Birds Brit. Mus., i, 1874, 189, part (San José, Costa Rica; Panama).

Buteo borealis var. *costaricensis* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 258 (diagn.; Costa Rica; Veraguas, Panama; excl. loc. Tres Marías); 285, footnote (Costa Rica; coll. U. S. Nat. Mus.).

Buteo borealis costaricensis Ridgway, *in* Nutting, Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica).—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 377 (San Juan del Sur, Nicaragua).—Zeledón, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Cartago and Santa Maria de Dota, Costa Rica).—Carriker, Ann. Carnegie Mus., vi, 1910, 457 (San Lucas de Dota, Azahar de Cartago, and Volcán de Turrialba, Costa Rica).—Swann, Synopt. List Accip., pt. 2, 1919, 48; Synop. Accip., ed. 2, 1922, 78; Monogr. Birds Prey, i, 1926, 395 (monogr.).—Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 310 (Changuinola, Panama).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 154 (distr.; Guatemala).

Buteo borealis e. *costaricensis* Coues, Birds Northwest, 1874, 353 (syn.).

Buteo costaricensis Gurney, Ibis, 1876, 239, in text (crit.); List Diurn. Birds Prey, 1884, 66; Cat. Birds Prey, 1894, 24.—Sharpe, Hand-list, i, 1899, 256.—Bangs, Proc. New England Zool. Club, iii, 1902, 20 (Boquete, Chiriquí, Panama, 4,000 feet).

[33] Three specimens from Veraguas, Panama, and Costa Rica.

[34] Three specimens from Costa Rica and Guatemala.

Buteo jamaicensis costaricensis Peters, Check-list Birds of World, i, 1931, 232 (distr.).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (mountains of Veraguas, Panama).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 526 (Michoacán; Cerro de Tancitaro, and between Patzcuaro and Comanje; spec.).—van Rossem, Auk, lix, 1942, 450, in text.

Buteo jamaicensis jamaicensis Housse, El Hornero, viii, 1941, 47, in text (No. 9 on map).

BUTEO HARLANI (Audubon)

HARLAN'S HAWK

Adult.—Melanistic phase (sexes alike): Similar to the corresponding phase of *Buteo jamaicensis calurus*, but with the tail grayish to umber, terminally washed with cinnamomeous in some specimens, not in others, longitudinally mottled with fuscous to fuscous-black, and subterminally crossed by a fairly broad but not very definite band of fuscous-black; usually with some of the whitish basal parts of the feathers of the nape showing and with some whitish on the upper tail coverts as well. Like all the plumages of this hawk, this one varies greatly. The general body color ranges from deep fuscous-black to purplish black, deep chocolate-black, and dark sepia; the ground color of the tail may be dirty whitish, cinnamomeous, or ashy brown, and the amount or extent of freckling is also very variable. It is hard to find two specimens that are exactly alike.

Adult.—Intermediate phase (sexes alike): Prevailing color of upper parts blackish brown, relieved by streaks of pure white on the head and neck, where the feathers are entirely pure white beneath the surface; wings clouded or mottled with lighter brown; outer webs of primaries marked, anterior to their sinuations, with broad bars of dusky and brownish slate, the narrower terminal portion being uniform brownish black. Upper tail coverts irregularly spotted, chiefly toward edges, with clear ochraceous, sometimes mixed with tawny; tail whitish sparsely mottled, chiefly toward ends and along edges of feathers, with hoary brown and dusky, with from scarcely any admixture of ochraceous to a definite cinnamomeous subterminal wash, and crossed near the end by a fairly well defined band of brownish black; chin, throat, and whole breast pure white, marked with sharply defined tear-shaped longitudinal spots of brownish black; rest of underparts brownish black, more or less spotted and barred with pure white; iris brown; cere and gape green; legs pale yellow.

Adult.—Light phase (sexes alike): Head and neck above white, each feather marked with a central guttate or acute-ovate spot of dusky brown, the whole under surface of the plumage, however, pure white to white with fuscous-black pear-shaped streaks on the lower throat, sides of breast, and upper abdomen; the thighs lightly flecked with wood brown; back and scapulars mixed brownish gray, dusky brown, and white, in nearly equal proportion, the whole underlying

portion of the feathers white; lesser and middle wing coverts nearly uniform dusky brown, with a faint purplish gloss; greater coverts grayish brown, transversely spotted, or irregularly barred with dusky, the concealed basal portion white; secondaries similar, but darker terminally, and narrowly tipped with white; primaries grayish brown, darker toward ends, indistinctly mottled with darker or lighter, the shorter quills with decidedly, though not abruptly, paler tips; upper tail coverts white, marked with an irregular subterminal blotch of dusky brown (continued, irregularly, along the shaft), the inner webs of some of them stained with ochraceous; tail white, the outer webs of all the feathers confusedly mottled, chiefly near the edges, with brownish gray, these mottlings more coalesced, and also darker in color, near the end of the feathers, so as to suggest a poorly defined subterminal darker band; inner webs of all the rectrices, also the shafts, entirely white; head, neck, and entire lower parts white, the first finely streaked laterally with dusky, the throat more broadly streaked, and from the rictus backward a broad stripe of dusky, formed of coalesced guttate streaks or spots, which at the lower part of the throat extend across, forming a narrow interrupted band; sides of jugulum marked with guttate spots of dusky brown; flanks and lower part of abdomen marked with guttate and lanceolate spots or streaks of very dark brown; front and inner sides of tibiae sparsely and irregularly marked with clear grayish brown; whole breast, anal region, and crissum, immaculate; lining of wing white, sparsely and irregularly spotted with dusky, thus forming a patch on the anterior under wing coverts; under surface of primaries, anterior to their emargination, faintly, sparsely, and irregularly mottled with grayish; iris brown; cere yellowish green; bill blackish at tip, bluish at base; tarsi and toes yellowish gray.

In this plumage we find great variation in the amount of dark markings on the underparts, ranging from immaculate white to practically the condition described as the intermediate phase. A specimen in the light phase, but with plain light hoary gray outer webs to the primaries, was described as *Buteo cooperi*. This color feature is unusual; only one such is known.

Juvenal.—Melanistic phase (sexes alike): Indistinguishable with any certainty from that of the melanistic phase of *Buteo jamaicensis calurus*. According to some authors the young of *harlani* are more abundantly spotted with white than *calurus*, but there is no positive evidence that birds so separated are definitely attributable to one or the other form. Iris yellowish gray to gray brown; cere and gape greenish; bill bluish slate; tarsi and toes pale greenish or yellowish gray to greenish yellow.

Juvenal.—Light phase (sexes alike): Indistinguishable with

certainty from that of the light phase of *Buteo jamaicensis calurus*. Juvenals often have the middle of the crown and sides of breast cream to warm buff, but this fades, leaving these feathers white shortly after the birds have left the nest.

Natal down.—Pale smoke gray, a little whiter on the underparts.

Adult male.—Wing 365–390 (380.8); tail 203–224 (211.2); culmen from cere 21.5–26 (24.2); tarsus 66–95 (80.9); middle toe without claw 39–44 (41.0 mm.).[35]

Adult female.—Wing 390–430 (409.1); tail 207.5–238 (226.2); culmen from cere 24.5–28 (26.4); tarsus 74–100 (86.8); middle toe without claw 43–48.5 (44.9 mm.).[36]

Range.—Breeds from extreme northern British Columbia east of the coast ranges (Atlin region; Blue Canyon; Wilson Creek); north into the valley of the Yukon (Forty Mile) and to the Mount Logan area, Alaska (Chitina glacier); eastward and southeastward to the Red Deer region, Alberta, and to north central North Dakota (Rolla).

Winters in Arkansas and adjacent areas south to Louisiana (Baton Rouge; St. Francisville, etc.) and Texas (Gainesville; San Antonio, Medina River; Fort Brown (?)); migrating from its breeding grounds east of the mountains through Manitoba, the Dakotas, Minnesota, Nebraska, Iowa, Missouri, and Kansas, occasional specimens lingering en route. Occasional in Colorado (Colorado Springs; Fort Lyon) and Illinois (Warsaw; Calumet River; Toledo); Indiana, casual in Pennsylvania (Northumberland County); Georgia (sight records only); and California (Santa Clara); doubtfully recorded from Arizona (Gila River). Recorded (unsatifactorily) from Veracruz and from Oaxaca, Mexico.

The majority of winter specimens in collections are from Arkansas, which seems to be the center of the winter distribution; more migrants have been collected in North Dakota than any other one area.

Type locality.—St. Francisville, La.

Falco harlani Audubon, Birds Amer., fol. ed., 1830, pl. 86; Orn. Biogr., i, 1831, 441 (St. Francisville, La.; type now in coll. Brit. Mus.; see Salvin, Ibis, 1874, 314); v, 1839, 380).—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 105.

Buteo harlini Audubon, Synopsis, 1838, 6 (Louisiana).

Buteo harlani Bonaparte, Geogr. and Comp. List, 1838, 3.—Audubon, Birds Amer., 8vo ed., i, 1840, pl. 8.—Cassin, Illustr. Birds California, Texas, etc., 1854, 101; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 24, part (near Fort Thorne, N. Mex.; description of adult [but not of young which=*B. j. calurus*]).—Strickland, Orn. Syn., i, 1855, 30.—Baird, Cat. North Amer.

[35] Thirty specimens from Arkansas, North Dakota, Kansas, Texas, and Manitoba.

[36] Thirty-one specimens from Arkansas, Kansas, North Dakota, Manitoba, Alberta, and Alaska.

Birds, 1859, No. 22.—Bryant, Proc. Boston Soc. Nat. Hist., viii, 1861, 113 (crit.).—Dresser, Ibis, 1865, 324 (Medina River, Tex.).—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 45 (crit.); Check-List North Amer. Birds, 1873, No. 350; Birds Northwest, 1874, 352; Key North Amer. Birds, ed. 2, 1884, 543.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 292 (Lawrence, Kans.; Rio Grande, lat. 32° and San Antonio, Tex.); Bull. Nuttall Orn. Club, v, 1880, 58 (Gainesville, Tex., 1879; descr. adult female white-bellied phase); Auk, ii, 1885, 165, 166 (crit.; diagnosis); Man. North Amer. Birds, 1887, 231; Orn. Illinois, i, 1889, 469.—Snow, Birds Kansas, 1873, 1 (Lawrence, Kans., Oct. 1871).—Salvin, Ibis, 1874, 314 (crit.).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 191 part (Louisiana; descr. of adult, but not that of young, which = *B. j. calurus* ?); Hand-list, i, 1899, 246.—Gibbs, Naturalist and Fancier, i, No. 8, 1877, 31 (Gainesville, Tex., Nov. 16, 1876; descr.).—Merrill, Proc. U. S. Nat. Mus., i, 1878, 154 (Fort Brown, Tex., Nov. 1876).—Worthen, Bull. Nuttall Orn. Club, v, 1880, 31 (Warsaw, Hancock County, Ill., Mar. 1879, 1 spec., 2 others seen).—American Ornithologists' Union, Check-list, 1886, No. 338.—Talbot, Auk, vii, 1890, 285 (Sioux City, Iowa; crit.).—Goss, History Birds Kansas, 1891, 263, in text.—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; w. part).—Gurney, List. Diurn. Birds Prey, 1884, 66; Cat. Birds Prey, 1894, 24.—Palmer, Condor, xxx, 1928, 281, in text (patronymics).—Stone, Auk, xlv, 1928, 205, in text (melanistic red-tailed hawk) (?).—Peters, Check-list Birds of World, i, 1931, 232 (distr.).—Taverner, Auk, liii, 1936, 360, in text (crit.); Can. Water Birds, 1939, 187 (Canada; descr.).—Oberholser, Bird Life Louisiana, 1938, 167 (Louisiana; rare winter vis., in c. and s. parts.).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).—Haecker, Moser, and Swenk, Nebraska Bird Review, xiii, 1945, 9 (Nebraska; uncommon to rare migr.).

Buteo harlanii Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 104.—Coues, Key North Amer. Birds, 1872, 216.

Buteo borealis harlani Ridgway, Auk. vii, 1890, 205, in text (Grinnell, Iowa, no date; crit.); Man. North Amer. Birds, ed. 2, 1896, 231.—American Ornithologists' Union, Auk, viii, 1891, 88; Check-list, ed. 2, 1895, 131; ed. 3, 1910, 158; ed. 4, 1931, 66; Auk, lxi, 1944, 445 (nomencl).—Goss, Hist. Birds Kansas, 1891; 263 (Kansas; rare; spec.; descr.).—Bendire, Life Hist. North Amer. Birds, i, 1892, 217.—Stone, Birds Eastern Pennsylvania and New Jersey, 1894, 87 (Northumberland County, Pa.).—Butler, Proc. Indiana Acad. Sci., 1896, 245 (Boone County, Ind., 1887); Auk, xiv, 1897, 200 (same record); Rep. State Geol. Indiana for 1897 (1898), 784 (Perry Township, Boone County, Ind., Sept. 1887; Warsaw, Hancock County, Ill., 1 pair, 1879; Toledo, Cumberland County, Ill., no date).—Lane, Auk, xiii, 1896, 342 (Lac qui Parle County, Minn., April 12, 1893).—Cooke, Birds Colorado, 1897, 75 (Colorado Springs; Port Lyon?).—Lantz, Trans. Kansas Acad. Sci., 1896–1897 (1899), 255 (Kansas; rare).—Beyer, Proc. Louisiana Soc. Nat. for 1897–1899 (1900), 99 (uncommon in winter; said to breed).—Allison, Auk, xxi, 1904, 477 (Baton Rouge Parish, La.; common in March).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 187 (Cambridge, Mass.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 248 (Iowa records).—? Keyes, Warbler, iii, 1907, 41–45, 2 pls. from photographs of eggs (Iowa County, Iowa, breeding; descr. 5 sets of eggs).—Widmann, Birds Missouri, 1907, 96 (Dunklin and Pemiscot Counties, frequent in May; near Billings, Christian County, Nov. 1905).—Woodruff, Chicago Acad. Sci., Bull. 6, 1907, 95

(near Calumet Lake, Cook County, Ill., Oct. 1, 1895); Auk, xxv, 1908, 214 (Shannon County, Mo.).—Beyer, Allison, and Kopman, Auk, xxv, 1908, 441 (Louisiana, winter visitant).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 463 (Illinois records).—Sclater, Hist. Birds Colorado, 1912, 176 (Colorado; 1 record).—Bunker, Kansas Univ. Sci. Bull., vii, 1913, 147 (Kansas, occ.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 112 (monogr.; Iowa).—Harris, Trans. Acad. Sci. St. Louis, xxiii, 1919, 262 (near Kansas City, Mo., 1 spec., 1916).—Swann, Synopt. List Accip., pt. 2, 1919, 47; Synop. Accip., ed. 2, 1922, 78; Monogr. Birds Prey, i. 1926, 394 (monogr).—Lincoln, Auk, xxxvii, 1920, 130, 132, in text (stat. in Colorado; Littleton, Colo., Oct. 16, 1918).—Wood, Univ. Michigan Mus. Zool., Misc. Publ. No. 10, 1923, 39 (Stump Lake, N. Dak., Oct. 2, 1902; Grafton, N. Dak.; May 1, 1910); Auk, xlii, 1925, 145 (Grafton, N. Dak.); Wils. Bull., xliv, 1932, 78, in text (crit.; tax.; plumages).—Bailey, Birds Florida, 1925, 69, pl. 40 (fig.; distr.; Florida).—Gloyd, Wils. Bull., xxxvii, 1925, 142 (econ. status Kansas).—Griscom and Crosby, Auk, xliii, 1926, 34 (Brownsville, Tex. hypothetical).—Swarth, Univ. California Publ. Zool., xxx, 1926, 105 (Atlin region, Brit. Columbia plumage; colors of soft parts; habits; food; stat.; crit.).—Taverner, Birds Western Canada, 1926, 193, in text (crit.; plumages); Victoria Mem. Mus. Bull. 48, 1927, 5, pls. 1–3 (crit.; plumage, fig.); Nat. Mus. Canada, Bull. 50, 1928, 92 (near Belvedere, Alberta; prob. migr.); Birds Canada, 1934, 126, in text (Canada; descr.; distr.); Condor, xxxviii, 1936, 67, 69, 70, 71, in text (distr.; hybridization; color; feather descr.).—Williams, Wils. Bull., xxxviii, 1926, 32 (stat.; Red River Valley, N. Dak.).—Linsdale and Hall, Wils. Bull., xxxix, 1927, 96 (Douglas County, Kans.).—Eifrig, Wils. Bull., xl, 1928, 216, in text (stat.; tax.; crit.).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1928), 78, 79, in text (Chitina River region, Alaska; spec.; tax.).—Grinnell, Condor, xxxii, 1930, 259, 260, in text (crit.).—[Arthur], Birds Louisiana, 1931, 198 (descr.; stat.; Louisiana).—Baerg, Univ. Arkansas Agr. Exp. Sta. Bull. 258, 1931, 48 (descr.; distr.; Arkansas).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 22 (Missouri; uncommon migr.).—DuMont, Wils. Bull., xliv, 1932, 237 (localities of Iowa; specs.).—Roberts, Birds Minnesota, i, 1932, 310 (distr.; habits; Minnesota).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 174 (life hist.).—McLean, Condor, xxxix, 1937, 228, in text (Lassen County, Calif.; 2 specs.).—Imler, Bird-Banding, viii, 1937, 167, in text (Rooks County, Kans.; weights).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 50 (rare migr.; 2 spec.; status not well understood).—Long, Trans. Kansas Acad. Sci. xliii, 1940, 439 (Kansas; common winter resident; abundant in southern part).—Todd, Birds Western Pennsylvania, 1940, 142 (w. Pennsylvania; descr.; distr.).—Hill, Auk, lxi, 1944, 230, 231 (meas.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 174 (Kansas, common winter res.).

Buteo buteo harlani Prill, Wils. Bull., xlix, 1937, 119, in text (Scio, Oreg., rec.).

Buteo jamaicensis harlani van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 20, in text (crit.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 101 (California; rare winter vis.).

Leucopternis harlani Henry, Proc. Acad. Nat. Sci. Philadelphia, 1859, 105 (Big Bend of Arkansas River, Indian Territory, May 1852; Gila River, Ariz.?).

Buteo cooperi Cassin, Proc. Acad. Nat. Sci. Philadelphia, viii, 1856 (=April 25, 1857, *fide* Grinnell, Univ. California Publ. Zool., xxxviii, 1932, 266), 253 (Santa Clara, Calif.; coll. U. S. Nat. Mus.); *in* Baird, Rep. Pacific R. R. Surv., 1858, 31; *in* Baird, Cassin, and Lawrence, Birds North Amer., 1860, 31, pl.

16.—Baird, Cat. North Amer. Birds, 1859, No. 29.—Cooper and Suckley, Rep. Pacific R. R. Surv., x, book 2, pt. 3, 1860, 148, pl. 16 (descr., etc.).—Bryant, Proc. Boston Soc. Nat. Hist., viii, 1861, 113 (crit.).—Gray, Hand-list, i, 1869, 8, No. 56.—Cooper, Orn. California, Land Birds, 1870, 472 (Mountain View, Santa Clara Valley, Calif.; crit.).—Coues, Key North Amer. Birds, 1872, 216; Check List, North Amer. Birds, 1873, No. 349.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 295; Auk, i, 1884, 253, 254 (crit.); ii, 1885, 165, 166 (crit.); Man. North Amer. Birds, 1887, 230; ed. 2, 1896, 230.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 172, footnote; Hand-list, i, 1899, 246.—Gurney, List Diurn. Birds Prey, 1884, 66.—American Ornithologists' Union, Check-list, 1886, 353 (hypothetical list, No. 14); ed. 2, 1895, 329 (hypothetical list, No. 14); ed. 3, 1910, 372.—Fisher, Hawks and Owls United States, 1893, 79.—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 186, 187 (Cambridge, Mass.; spec. Nov.).—Swann, Synopt. List Accip., pt. 2, 1919, 49.—Palmer, Condor, xxx, 1928, 272, in text.—Grinnell, Condor, xxxii, 1930, 259 (syst.; crit.); Univ. California Publ. Zool., xxxviii, 1932, 266 (type loc.; crit.).

Buteo cooperi ? Coues, Key North Amer. Birds, ed. 2, 1884, 543.

Tachytriorchis cooperi Goode, U. S. Nat. Mus. Bull. 20, 1883, 345.

BUTEO GALAPAGOENSIS (Gould)

GALÁPAGOS HAWK

Adult (sexes alike in color).—Nearly uniform dark sooty brown, inclining to brownish black on head, lighter and tinged with rusty on sides, flanks, abdomen, and tibiae, where the feathers have more or less distinct terminal margins of lighter brown; under tail coverts with broad white bars, mostly concealed, except on longer feathers, where the whitish bars nearly equal the dark brown interspaces in extent; secondaries darker brown than wing coverts, crossed by four or five (exposed) broad obsolete bars of a still darker shade, and margined terminally with pale grayish brown; primaries brownish black, slightly grayer on outer webs, where traces of obsolete darker bars can be discovered on second to fourth quills; inner webs of primaries, on under surface, anterior to emarginations, grading from white on first quill to brownish gray on the innermost, all marked with broken bars and freckling of brownish gray; under wing coverts plain dark sooty brown, the greater series rather paler and barred with light grayish, especially on inner webs. Upper tail coverts barred on outer webs with white and dark brown, their inner webs with light grayish brown and dark brown, the lighter and darker bars nearly equal in width. Tail grayish brown, with more or less of a hoary cast (especially on the newer feathers), crossed, beyond tips of upper coverts, by about nine bars of dusky, of which the last is broadest and succeeded by a narrow terminal band of whitish brown (dirty white on newer feathers). Bill grayish black, paler (light bluish in life?) basally; cere yellowish; legs and feet yellowish, claws grayish black.

Juvenal (and immature) (sexes alike).—General color of upperparts

dark sooty brown, but this broken on head and neck by streaks of buff and on back, scapulars, wing coverts, and rump by subbasal spots and edgings of the same; remiges as in adults; upper tail coverts irregularly barred with sooty brown and ochraceous-buff; tail grayish brown, washed with hoary gray on middle feathers, crossed by numerous bars of dusky (narrower than in adult), which become obsolete toward the base of the tail, the last one much the broadest, and narrowly tipped with pale brown or dirty brownish white; the inner webs of the rectrices light pinkish buff, shaded with grayish brown and marked with irregular narrow dusky bars, rather more distinct than those on outer webs. Underparts deep ochraceous-buff, marked with shaft streaks and tear-shaped spots of dark sooty brown, largest on belly and flanks, the thighs, under tail coverts, and under wing coverts transversely spotted with the same; under surface of primaries, anterior to their emarginations, pale buff, or buffy white, almost immaculate.

Natal down.—White.

Adult male.—Wing 365–432 (388); tail 191–235 (208.5); culmen from cere 26–32.5 (27.5); tarsus 70–85 (74.4); middle toe without claw 41–56 (44.1 mm.).[37]

Adult female.—Wing 410–435 (421); tail 222–237 (231); culmen from cere 30–32 (31); tarsus 74–89 (81.2); middle toe without claw 44–53 (47.9 mm.).[37]

[37] Twenty-two males, 15 females, as follows (*ex* Swarth, Occ. Papers California Acad. Sci., xviii, 1931, 51):

Locality	Sex	Number of specimens	Wing	Tail	Culmen	Tarsus	Middle toe
			Mm.	*Mm.*	*Mm.*	*Mm.*	*Mm.*
Jervis Island	♂	1	385	200	27.5	79	44
Duncan Island	♂	3	377–395 (386.3)	191–210 (199.7)	27–28 (27.3)	72–75 (73.7)	42–46 (44)
Indefatigable Island	♂	11	365–393 (379.5)	205–215 (207.1)	26–28 (26.9)	70–76 (72.4)	41–44 (42.9)
Barrington Island	♂	4	385–395 (389.7)	207–212 (209.5)	27–27.5 (27.4)	75–76 (75.5)	42–44 (43.5)
Hood Island	♂	3	410–432 (420)	217–235 (223)	28.5–32.5 (30.2)	74–85 (80.3)	46–56 (49.3)
Bindloe Island	♀	1	435	243	30	80	47
Jervis Island	♀	1	420	225	31	81	50
Duncan Island	♀	2	412–415	222–223	31.5–32	81–82	48–48
Indefatigable Island	♀	10	410–433 (419.7)	225–237 (231.9)	30–32 (30.9)	74–89 (81.1)	44–53 (47.6)
Barrington Island	♀	1	435	233	32	84	50

It may be, as pointed out by Swarth, that the birds of Hood Island are a recognizable race, based on larger size. Swarth had in addition three young males from there, which agreed with the adults in size. It is possible, however, that the birds may be wrongly sexed.

Range.—Resident in the Galápagos Archipelago, where known to occur in the following islands: Bindloe, Abingdon, James, Jervis, Duncan, Albemarle, Narborough, Indefatigable, Daphne, Seymour, Barrington, Chatham, Hood, and Gardner-near-Hood. Definitely reported as not seen on Charles, Culpepper, Wenman, and Tower Islands.

Type locality.—Galápagos Islands.

Polyborus galapagoensis Gould, Proc. Zool. Soc. London, 1837, 9 (Galápagos Islands; coll. Zool. Soc. London); Zool. Voy. *Beagle*, pt. 3, 1841, 23.

Craxirex galapagoensis Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 23, pl. 2 (habits).—Bonaparte, Consp. Gen. Av., i, 1850, 34.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 91 (diagnosis).

Craxirex gallopagoensis Kaup, Isis, 1847, 953 (crit.).—Bonaparte, Rev. Mag. Zool., vi, 1854, 537.

Astur galapagoensis Kaup, Nat. Hist. Verh. [Hesse], ii, 1848, 79.

Astur (unicinctus) galapagoensis Kaup, *in* Jardine's Contr. Orn., 1850, 67.

Buteo galapagoensis Gray, Hand-list, i, 1869, 7, No. 47.—Baur, Amer. Nat., xxxi, 1897, 783 (Jervis Island).—Ridgway, Proc. U. S. Nat. Mus., xix, 1897, 587 (South Albemarle, Duncan, Hood, Chatham, Barrington, Indefatigable, James, Bindloe, and Abingdon Islands, Galápagos; synonymy; descriptions; crit.).—Rothschild and Hartert, Nov. Zool., vi, 1899, 174 (Chatham, Albemarle, Duncan, Hood, Indefatigable, Barrington, Bindloe, Abingdon, James, and Jervis Islands; crit.; descr. nest and eggs), 202 (Galápagos Islands); ix, 1902, 404 (Narborough, Indefatigable, Seymour, Daphne, and Albemarle Islands; crit.; descr. nests), 417 (Galápagos).—Snodgrass and Heller, Proc. Washington Acad. Sci., v, 1904, 264 (Hood, Chatham, Barrington, Indefatigable, Duncan, Jervis, James, Albemarle, Narborough, Abingdon, and Bindloe Islands; habits; descr. nests and eggs).—Swann, Monogr. Birds Prey, i, 1926, 351 (monogr.).—Fisher and Wetmore, Proc. U. S. Nat. Mus., lxxix, art. 10, 1931, 37 (Seymour, Indefatigable, and Hood Islands, etc., Galápagos Islands; habits).—Peters, Check-list Birds of World, i, 1931, 232.—Swarth, Occ. Pap. California Acad. Sci., xviii, 1931, 46 (crit.; spec.; Galápagos).—Trimble, Ann. Carnegie Mus., xxix, 1943, 421 (James Island, Galápagos).

Buteo galapagensis Sundevall, Proc. Zool. Soc. London, 1871, 125, 127 (crit.).—Sclater and Salvin, Nom. Av. Neotr., 1873, 119.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 170.—Salvin, Trans. Zool. Soc. London, ix, 1876, 495 (Indefatigable and Abingdon Islands).—Gurney, List Diurn. Birds Prey, 1884, 70 (crit.), 143 (crit.; *B. leucops* Gray not a synonym, but probably referable to *B. erythronotus* King); Cat. Birds Prey, 1894, 533.—Ridgway, Proc. U. S. Nat. Mus., xii, 1890, 113 (Indefatigable and Abingdon Islands).—Rothschild and Hartert, Nov. Zool., vi, 1899, 118 (Eden Island, Galápagos).—Sharpe, Hand-list, i, 1899, 255.—Gifford, Proc. California Acad. Sci., ser. 4, ii, 1919, 190 (Abingdon, Albemarle, Barrington, Bindloe, Chatham, Duncan, Gardner-near-Hood, Hood, and Indefatigable Islands; habits; plumages; descr. nest and eggs).—Swann, Synopt. List Accip., pt. 2, 1919, 41; Synop. Accip., ed. 2, 1922, 68.

Buteo (Craxirex) galapagoensis Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 93 (monogr.).

Buteo leucops Bonaparte, Rev. Mag. Zool., vi, 1854, 533.—Gray, Hand-list, i, 1869, 8, No. 64.

BUTEO ALBONOTATUS ALBONOTATUS Kaup

NORTHERN ZONE-TAILED HAWK

Adult (sexes alike).—Form rather light and slender, but wings and tail large, well developed; four outermost primaries with inner webs distinctly emarginated; middle toe not decidedly, if any, longer than the bare portion of tarsus in front; plumage uniformly black or black with a faint brownish cast, the feathers pure white basally; the upper back and breast with a slight slate tinge in some specimens; lores and a narrow frontal line whitish; loreal feathers with dark shafts; inner webs of remiges paling to deep neutral gray and to grayish white, barred with fuscous-black; the outer webs of all but the outermost primary indistinctly barred with fuscous-black and deep neutral gray; fourth primary longest; third scarcely shorter; fifth but little shorter than third; second intermediate between fifth and sixth; first equal to eighth; both webs of the middle pair of rectrices and the outer webs of the other tail feathers slate color, narrowly tipped with white and very broadly subterminally banded with black and irregularly banded with black on the basal three-fifths, the inner webs of all but the median pair whitish; entire body, under wing coverts and tail coverts black; iris dark brown to reddish brown; cere bright yellow; bill black paling to light grayish white at base; tarsus and toes bright yellow; claws black.

Immature (sexes alike).—Generally similar to adults, but the feathers of the underparts, especially the throat, breast, and upper abdomen, the nape, upper back, and upper tail coverts, spotted with white; feathers of the lower back and scapulars, and the upper wing coverts narrowly edged with dark Vandyke-brown; remiges as in adult; tail deep dark Vandyke-brown, faintly tipped with paler, and crossed by numerous narrow oblique bands of black; subterminal one broadest, about 18 mm. wide; the next one is not a fourth as wide and crosses about 25 mm. anterior to the last; the distance between the black bands diminishes toward the base of the tail, so that after the seventh of these no more can be distinguished; inner webs fading into whitish internally, especially on the lateral feathers; bill black at tip; bluish brown at base; iris dark brown.

Juvenal (sexes alike).—Similar to immature, but with a little more white spotting and with more of a brownish cast on the brown-edged feathers of the upperparts.

Natal down.—Not known.

Adult male.—Wing 380–393 (387.5); tail 216–222.8 (219.9); culmen from cere 21.5–22.3 (21.9); tarsus 66.8–71 (69.5); middle toe without claw 39.3–44.9 (42.2 mm.).[38]

[38] Seven specimens from Texas, Arizona, and Mexico.

Adult female.—Wing 409–438 (419.6); tail 224.6–234.5 (228.9); culmen from cere 24.5–25 (24.6); tarsus 73.1–77.5 (74.5); middle toe without claw 42.4–48 (45.7 mm.).[39]

Range.—Breeds from southern Texas (Guadaloupe Mountains; Davis Mountains; Devils River; Fredericksburg; Comal, Kendall, Tom Green, and Concho Counties); southwestern New Mexico (Apache; Lincoln County; Grant County; Hidalgo County; Gila River), southern Arizona (Tucson; New River; Huachuca Mountains; Rincon Mountains; Santa Rita Mountains; Santa Catalina Mountains; north to mouth of Bill Williams River, Big Sandy River, Camp Verde, and Graham Mountains; west to Baboquivari Mountains) and northern Baja California (San Pedro Mártir district southward); south throughout Mexico; and, chiefly in the highlands, to Guatemala (Ocós); Nicaragua (the pine forests of the north central highlands); Costa Rica (where apparently very rare); and eastern Panama (Permé, in the tropical lowlands). Not definitely known to breed in either Costa Rica or Panama.

Winters throughout most of its range but appears to go south of Arizona (except along the lower Colorado River), New Mexico, and Texas; also reported (rarely) from southern California (San Diego County).

Type locality.—Mexico.

Buteo albonotatus Gray, List Spec. Brit. Mus., pt. 1, Accip., 1844, 17; ed. 2, 1848, 36 (Mexico; *nomen nudum!*); Handlist Birds, 1869, 8, No. 63 (Mexico).—Kaup, Isis, 1847, 369 (first descr.); *in* Jardine's Contr. Orn., 1850, 75.—Strickland, Orn. Syn., i, 1855, 31.—Sclater and Salvin, Ibis, 1859, 217 (Guatemala; food).—Sclater, Proc. Zool. Soc. London, 1860, 253 (Veracruz, Mexico).—Frantzius, Journ. für Orn., xvii, 1869, 368 (Costa Rica).—Salvin, Ibis, 1873, 428 (Guatemala).—Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 302 (Mazatlán, Sinaloa; habits).—Swann, Auk, xxxviii, 1921, 360, in text (crit.).—American Ornithologists' Union, Check-list, ed. 4, 1931, 68 (distr.).—Huey, Condor, xxxv, 1933, 126, in text (Chula Vista, Calif.; spec.).—Willett, Pacific Coast Avif., No. 21, 1933, 43 (sw. California; rare fall and winter straggler; syn.).—Gilman, Condor, xxxvii, 1935, 240, in text (Death Valley, Calif.; 1 rec.).—van Rossem, Trans. San Diego Soc. Nat. Hist., viii, 1936, 127 (se. Arizona; Arivaca; nesting in Baboquivari Mountains; distr.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 212 (life hist.).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 22 (Brewster County, Tex.; records; head colors; meas.).—Monson, Condor, xxxix, 1937, 254, in text (Graham County, Ariz.; 3 records).—Sutton and Burleigh, Occas. Pap. Mus. Zool., Louisiana State Univ., No. 3, 1939, 26 (nc. Mexico; Saltillo, Coahuila).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 97 (w. Texas; Guadalupe Mountains).—Huey, Trans. San Diego Soc. Nat. Hist., ix, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; 2 seen).—Grinnell and Miller, Pacific Coast Avif. No. 27, 1944, 103 (California; rare fall and winter vagrant).—Hill, Auk, lxi, 1944, 230 (meas., sex dimor-

[39] Nine specimens from Texas, Arizona, and Mexico.

phism).—Monson, Condor, xlvi. 1944, 20 (Yuma, Ariz., spec.).—Cottam, Condor, xlix, 1947, 210 (struggling with rock squirrel).—Neff, Condor, xlix, 1947, 32 (Sonora; nesting localities).

Buteo albonotatus? Howard and Miller, Condor, xxxv, 1933, 16 (bones; Organ Mountains, N. Mex.)

Buteo albonotatus albonotatus Swann, Synop. Accip., ed. 2, 1922, 83 (Mexico; Arizona; New Mexico; Texas).—Oberholser, Auk, xl, 1923, 680 (nomencl.).—Bailey, Birds New Mexico, 1928, 165 (genl.; New Mexico).—Swann, Monogr. Birds Prey, i, 1928, 406 (monogr.).—Huber, Auk, xlvi, 1929, 544 in text (Lincoln County, N. Mex.).—Peters, Check-list Birds of World, i, 1931, 232.—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 243 (Sonora, Mexico).; Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 56 (Sonora; fairly common summer vis.).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Permé, Panama); Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 153 (distr.; Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 298 (Perme, eastern Darién).

Tachytriorchis albinotatus Bonaparte, Consp. Gen. Av., i, 1850, 17 (Mexico; no description).

Buteo zonocercus Sclater, Proc. Zool. Soc. London, 1858, 130 (Guatemala; coll. Norwich Mus.=adult); Ann. Mag. Nat. Hist., ser. 3, ii, 1858, 227 (reprint of original descr.); Trans. Zool. Soc. London, iv, 1862, 268, pl. 59.—Sclater and Salvin, Ibis, 1859, 217 (Guatemala).—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 46 (Gila River, Ariz.); Key North Amer. Birds, 1872, 217; Check List North Amer. Birds, 1873, No. 353.—Elliot, New and Unfig. North Amer. Birds, ii, pt. 8, 1867, pl. 33, and text.—Cooper, Amer. Nat., iii, 1869, 186 (30 miles s. of San Diego, Calif.); Orn. California, Land Birds, 1870, 479.—Gray, Hand-list, i, 1869, 8, No. 65, part (Guatemala).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 272.—Brewster, Bull. Nuttall Orn. Club, iv, 1879, 80 (Comal County, Tex.).—Stevens (i. e., Stephens), Bull. Nuttall Orn. Club, iv, 1879, 189 (Gila River, N. Mex.; breeding; descr. nest and eggs).

(?) *Buteo cabanisii* Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 11, part (Mexico).

(?) *Astur cabanisii* Gray, Hand-list, i, 1869, 30, No. 285 part (Mexico).

Buteo abbreviatus (not of Cabanis, 1848) Sclater and Salvin, Nom. Av. Neotr., 1873, 118, part (Mexico; Guatemala).—Gurney, Ibis, 1876, 231, in text (crit.); List Diurn. Birds of Prey, 1884, 67; Cat. Birds of Prey, 1894, 24.—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 440; Man. North Amer. Birds, 1887, 234.—Brown, Bull. Nuttall Orn. Club, vii, 1882, 42 (Boerne, Kendall County, Tex.).—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 522; Key North Amer. Birds, ed. 2, 1884, 546.—Belding, Proc. U. S. Nat. Mus., v, 1883, 544 (Cape San Lucas district, Lower California).—Brewster, Bull. Nuttall Orn. Club, viii, 1883, 30 (Tucson, Ariz.; measurements; etc.); Bull. Mus. Comp. Zool., xli, No. 1, 1902, 87 (San José del Cabo and San Pedro Mártir Mountains, 7,000–7,500 feet, breeding, Lower California).—American Ornithologists' Union, Check-list, 1886, No. 340; ed. 2, 1895, No. 340; ed. 3, 1910, 159.—Ferrari-Perez, Proc. U. S. Nat. Mus., xvi, 1886, 167 (Chietla, Puebla).—Mearns, Auk, iii, 1886, 63 [=69] (Verde Valley, Ariz.; syn.; descr.; habits).—Scott, Auk, iii, 1886, 423 (San Pedro district, near Tucson, Riverside, etc., Ariz.; numerous during migr.).—Lloyd, Auk, iv, 1887, 188 (Tom Green or Concho County, Tex., 1 spec., Sept. 10, 1884).—Bendire, Proc. U. S. Nat. Mus.,

x, 1888, 551 (Fort Huachuca, Ariz.; habits; descr. nest and eggs); Life Hist. North Amer. Birds, i, 1892, 228, pl. 7, fig. 6.—Bryant Proc. California Acad. Sci., ser. 2, ii, 1889, 280 (Cape region and San Pedro Mártir Mountains, 7,500 feet, Lower California, breeding).—Anthony, Auk, ix, 1892, 361 (Apache, etc., sw. New Mexico); Zoë, iv, 1893, 234 (San Pedro Mártir Mountains, Lower California, 7,000–7,500 feet, breeding).—Rhoads, Proc. Acad. Nat. Sci., Philadelphia, 1892, 115 (Santa Catalina Mountains, 9,000 feet, Arizona; breeding near Oracle).—Beristain and Laurencio, Mem. Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; Puebla).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 59, part (Hermosillo, Sonora; Mazatlán; Sinaloa; Valley of Mexico; Sierra del Valparaiso, Zacatecas; Chietla, Puebla; Veracruz; Guatemala; San Lucas, La Palma de San José, and San Antonio, Costa Rica).—Brown, Auk, xviii, 1901, 392, in text (Rincon Mountains, Ariz., breeding).—Bailey, Handbook Birds Western United States, 1902, 157 (w. United States; descr.; distr.).—Grinnell, Pacific Coast Avif., No. 3, 1902, 32 (San Diego, Calif.; 1 record); No. 8, 1912, 10 (California); No. 11, 1915, 65 (California records); Univ. California Publ. Zool., xxxii, 1928, 109 (distr.; Lower California).—Swarth, Pacific Coast Avif., No. 4, 1904, 6 (Huachuca Mountains, Ariz.); No. 10, 1914, 25 (Arizona; breeds; winters at Yuma).—Linton, Condor, x, 1908, 181, in text (San Diego County, Calif.; erroneously recorded as *Urubitinga anthracina* in Condor, July 1907, 110).—Carriker, Ann. Carnegie Mus., vi, 1910, 456 (San Lucas, La Palma, and San Antonio, Costa Rica; "rare migrant").—Lacey, Auk, xxviii, 1911, 207 (Kerrville, Tex., Aug., Sept.).—Willett, Pacific Coast Avif., No. 7, 1912, 47 (30) miles s. of San Diego, Feb. 23, 1862; near National City, San Diego County, Nov. 26, 1906; 30 miles n. of San Diego, Sept. 10, 1907); Pacific Coast Avif., No. 21, 1933, 43, 183, in text (syn.).—Kellogg, Condor, xxiv, 1922, 212 (Tyrone, Grant County, N. Mex., Apr. 15, 1922).—Dawson, Birds California (stud. ed.), iii, 1923, 1687 (genl.; California).—Oberholser, Auk, xl, 1923, 680 (nomencl.).—Griscom and Crosby, Auk, xlii, 1925, 535 (status, Brownsville, Tex.).—Huey, Auk, xliii, 1926, 353 (La Grulla, Sierra San Pedro Mártir, El Rayo, Sierra Juárez, etc., nw. Lower California); Condor, xxx, 1928, 159, in text (Valle de la Trinidad, Lower California).—Lamb, Condor, xxix, 1927, 156 (El Valle and Todos Santos, Lower California).—Wyman and Burnell, Field Book Birds Southwestern United States, 1929, 100 (descr.; characters).—Bancroft, Condor, xxxii, 1930, 27 (Santa Rosalia, San Ignacio, Lower California).

Buteo abbreviatus abbreviatus Swann, Synopt. List Accip., pt. 2, 1919, 51, part (Mexico; Arizona; New Mexico; Texas); Auk, xxxviii, 1921, 360, part (crit.).

Tachytriorchis abbreviatus Sharpe, Cat. Birds Brit. Mus., i, 1874, 163, part (Mexico); Hand-list, i, 1899, 255, part (Lower California; "Central America," i. e., Mexico and Guatemala; s. United States).—Boucard, Liste Ois. récol. Guat., 1878, 19.

Butcola abbreviata Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 255 (Jalapa, Veracruz).

Buteo fuliginosus (not of Sclater) Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (Costa Rica).—Frantzius, Journ. für Orn., 1869, 368 (La Palma, Costa Rica).

Urubitinga anthracina (not *Falco anthracinus* Lichtenstein) Reed, North Amer. Birds' Eggs, 1904, 164 (Los Angeles County, Calif.).—Linton, Condor, ix, 1907, 110, in text (National City, San Diego County, Calif., Nov. 26, 1906; see Grinnell, Pacific Coast Avif., No. 11, 1915, 182).

BUTEO ALBONOTATUS ABBREVIATUS Cabanis

SOUTHERN ZONE-TAILED HAWK

Adult (sexes alike).—Similar to that of *Buteo albonotatus albonotatus*, but somewhat smaller and without the slate tinge shown in some of the latter.

Immature (sexes alike).—Similar to that of *Buteo albonotatus albonotatus*, but smaller.

Juvenal (sexes alike).—Similar to that of *Buteo albonotatus albonotatus*, but smaller.

Natal down.—Not known.

Adult male.—Wing 375–382 (379); tail 187–240 (210.3); culmen from cere 21–24 (22.3); tarsus 69–72 (71); middle toe without claw 40–44 (42.7 mm.).[40]

Adult female.—Wing 382–405 (398.3); tail 205–217 (210.8); culmen from cere 23–24 (23.7); tarsus 73–79 (75.4); middle toe without claw 43–45.4 (43.8 mm.).[41]

Range.—Resident from Panama (Pearl Islands) south through Colombia (Santa Marta district), Venezuela, Trinidad, British Guiana, Dutch Guiana, French Guiana, and Brazil (Pará) to Peru (Lima) and eastern Bolivia (Río Aniser, North Chiquitos); everywhere scarce and local.

Type locality.—Upper Pomeroon, British Guiana.

Buteo abbreviatus CABANIS, *in* Schomburgk's Reise Brit. Guiana, iii, 1848, 739 (Pomeroon, Brit. Guiana: ex *Falco abbreviatus* Lichtenstein, manuscript, in Berlin Mus.).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 118, part (Guiana).—SCLATER, Proc. Zool. Soc. London, 1883, 348 (Lima, Peru; crit.) — SALVIN, Ibis, 1886, 72 (Brit. Guiana).—CHAPMAN, Bull. Amer. Mus. Nat. Hist., vi, 1894, 70 (Trinidad).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1900, 59, part (Brit. Guiana; Peru).—ROBINSON and RICHMOND, Proc. U. S. Nat. Mus., xxiv, 1901, 167 (La Guaira, Venezuela).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (San Miguel Island, Bay of Panama).—TODD and CARRIKER, Ann. Carnegie Mus., xiv, 1922, 150 (Bonda and Mamatoco, Santa Marta, Colombia).—GROEBBELS, Der Vögel, ii, 1937, 299, in text (egg color).

Buteo abbreviatus abbreviatus SWANN, Synopt. List Accip., pt. 2, 1919, 51, part (Brit. Guiana; Surinam; Brazil; Venezuela; Bolivia); Auk, xxxviii, 1921, 360, part (crit.).

Buteo albonotatus abbreviatus SWANN, Synop. Accip., ed. 2, 1922, 83 (Panama to Brit. Guiana, Brazil, Bolivia, and Peru).—PETERS, Check-list Birds of World, i, 1931, 232.—BELCHER and SMOOKER, Ibis, 1934, 591 (Trinidad; rare res.; eggs).—ROBERTS, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—GRISCOM, Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (Pearl Islands, Panama).—PINTO,

[40] Three specimens from Venezuela, Colombia, and Bolivia. The Bolivian bird is much larger than the other two and may represent an undescribed form.

[41] Three specimens from Venezuela and Colombia. Swann (Monogr. Birds Prey, i, 1928, 408) records a female from Bolivia with a wing measurement of 455 mm.

Rev. Mus. Paulista, xxii, 1938, 70 (Brazil; distr.) —Griscom and Greenway, Bull. Mus. Comp. Zool,, lxxxviii, 1941, 112 (Lower Amazonia; Marajo Island).—Street, Auk, lxiii, 1946, 371 (Trinidad).

Tachytriorchis abbreviatus Sharpe, Cat. Birds Brit. Mus., i, 1874, 163, part (Guiana; Trinidad); Hand-list, i, 1899, 255, part (Venezuela; Guiana).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1893, 399 (Lima, Peru).—Brabourne and Chubb, Birds South Amer., i, 1912, 66 (Venezuela; Brit. Guiana; Brazil).—Chubb, Birds Brit. Guiana, i, 1916, 232 (translation of orig. descr.; crit.).

(?) *Buteo cabanisii* Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 11, part (Guiana).

(?) [*Astur*] *cabanisii* Gray, Hand-list, i, 1869, 30, No. 285, part (Guiana; Cayenne; Pará, Brazil).

Buteo zonocercus (not of Sclater, 1858) Léotaud, Ois. Trinidad, 1866, 9.—Gray, Hand-list, i, 1869, 8, No. 65, part (Trinidad).

Urubitinga anthracina Linton, Condor, ix, 1907, 110, in text (National City, San Diego County, Calif.).

BUTEO LINEATUS LINEATUS (Gmelin)

Eastern Red-shouldered Hawk

Adult (sexes alike).—Top of head, nape, scapulars, and interscapulars, upper and lower back and rump fuscous to fuscous-black, the feathers edged with from pale cinnamon to tawny and to a lesser extent with whitish, these edges most developed on the nape and interscapulars, and absent on the lower back and rump; upper wing coverts dull fuscous to hair brown, barred with grayish white and washed on the inner webs with cinnamomeous; the lesser coverts at the bend of the wing broadly edged with cinnamon or orange-cinnamon; remiges dull fuscous becoming whitish on the inner webs, especially of the outer primaries, narrowly tipped with white and barred with grayish white, these bars becoming more grayish (light neutral gray) on the inner webs of the secondaries; the fourth primary (from the outside) longest, the fifth next and then the third; the sixth longer than the second; the four outer primaries emarginated on the inner web; upper tail coverts barred broadly dark hair brown and whitish, the lateral ones usually with more white; the median ones often washed with pale tawny; rectrices fuscous-black crossed by four or five narrow grayish white bars and narrowly tipped with the same; lores and cheeks grayish tinged with cinnamomeous, often wholly cinnamomeous with fuscous shaft streaks; chin and middle of throat whitish to pale drab-gray, the feathers broadly tipped with hair brown, these areas being so long as to produce a rather streaked appearance; sides of throat like the nape and interscapulars; breast and upper abdomen varying from light ochraceous-buff barred with very pale buffy white and with prominent fuscous shaft streaks on the breast and sides of upper abdomen to pinkish cinnamon little or obscurely barred with pale buffy white on the breast and more distinctly barred

on the upper abdomen and with rather inconspicuous and few dusky shaft streaks on the breast; lower abdomen, thighs, and under tail coverts pale buffy white barred with light pinkish cinnamon to pinkish cinnamon on the thighs and upper abdomen, the bars becoming fainter caudally, and absent entirely from the under tail coverts; axillars and under wing coverts light pinkish buff to light pinkish cinnamon barred and marked with light pinkish cinnamon to pinkish cinnamon, and with a few hair brown bars as well; iris brown; orbital ridge greenish; edge of eyelids, gape, and cere light cadmium yellow; bill bluish horn color becoming blacker at base; feet dull cadmium to yellowish green, generally darker on the toes than the tarsi.

Juvenal (sexes alike).—Upperparts as in adult, but with the reddish and whitish feather edges much reduced, giving them a darker, more uniformly fuscous-black appearance; remiges as in adult but with the whitish areas suffused with cinnamomeous; rectrices drab, heavily washed with cinnamon basally, narrowly tipped with whitish and crossed by from six to nine dusky chaetura drab bars, the subterminal one being the broadest; sides of head and neck as in adult, but the cinnamomeous replaced by pale buffy white; entire underparts pale buffy white to pinkish buff and to light pinkish cinnamon, heavily spotted with large tear-shaped spots of hazel (rarely) to fuscous, the spots becoming fewer and smaller and often disappearing entirely on the lower abdomen, thighs, and under tail coverts; under wing coverts pinkish buff spotted with fuscous; iris sepia; cere pale lemon yellow; bill bluish at base and black at tip; tarsi and toes dirty light greenish chrome yellow.

Natal down.—White, sometimes with a slight pinkish or brownish tinge.

Adult male.—Wing 309–346 (320.8); tail 193–228.3 (207); culmen from cere 19.1–23.7 (21.6); tarsus 75–83.5 (78.7); middle toe without claw 33.1–40.5 (36.1 mm.).[42]

Adult female.—Wing 315–353 (339.1); tail 206.9–236.6 (219.9); culmen from cere 20.6–25 (23.1); tarsus 74.8–87 (80.4); middle toe without claw 34.9–41.7 (38.8 mm.).[43]

Range.—Breeds from southern Ontario (Parry Sound and Muskoka districts), southern Quebec, Nebraska, Iowa (Boone and Laporte City), southeastern Minnesota, Wisconsin, northern Michigan (Sault Ste. Marie, McMillan), and the Atlantic States south to North Carolina (Walker, Lake Ellis, etc.) and northern and eastern South Carolina; south to northeastern Tennessee, central Arkansas, Missouri, western Oklahoma, and north and central Texas (merging with

[42] Twenty-six specimens from all parts of the range.

[43] Twenty-two specimens from New York, New Jersey, Maryland, Virginia, Pennsylvania, Illinois, and Arkansas.

texanus and with *alleni* in the general vicinity of San Antonio). Has also been said to nest (at least twice) in southern Saskatchewan (East-end), but not regular there as a summer resident (identification open to doubt).

Winters from Oklahoma, Missouri, eastern Nebraska, southern Illinois (Odin), Indiana (Richmond, Logansport), Ohio, northwestern Pennsylvania, New York, Massachusetts, south along the Atlantic coast to Florida, the Gulf States, and central Texas; occasionally north to Kansas, Iowa, central Illinois (Rantoul), southern Michigan (Ann Arbor, Grand Rapids, Detroit), southern Ontario (Toronto, Hamilton), and Vermont (Montpelier, Bennington).

Casual (one record) in Utah and Bermuda (one record).

Accidental in Scotland (Kingussie, Inverness-shire; identification open to question).

Type locality.—Long Island, N. Y.

Falco lineatus Gmelin, Syst. Nat., i, pt. 1, 1788, 268 (Long Island, N. Y.; based on *Barred-breasted Buzzard* Latham, Synop. Birds, i, 1781, 56; *Red-shouldered Falcon* Pennant, Arctic Zool., ii, 1785, 206).—Latham, Index Orn., i, 1790, 27.—Daudin, Traité d'Orn., ii, 1800, 158.—Wilson, Amer. Orn., vi, 1812, 86, pl. 53, fig. 3.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 351; Obs. Wilson's Amer. Orn., 1826 [11]; iv, pt. 2, 1825, 271 (Obs. Wilson's Amer. Orn., 1826 [130].—Audubon, Orn. Biogr., Philadelphia ed., i, 1831, 296. pl. 56; v, 1839, 380.

(?) *Falco lineatus* Shaw, Gen. Zool., vii, pt. 1, 1809, 113.[44]

Buteo lineatus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 478.—Jardine, ed. Wilson's Amer. Orn., ii, 1832, 290.—Audubon, Synopsis, 1839, 7; Birds Amer., 8vo ed., i, 1840, 40, pl. 9.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 109.—Giraud, Birds Long Island, 1844, 7 (Long Island, N. Y.).—Kaup, Isis, 1847, 330 (monogr.), 369, 373, 380; *in* Jardine's Contr. Orn., 1850, 380.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 35, part (Delaware).—Bonaparte, Consp. Gen. Av., i, 1850, 19; Rev. Mag. Zool., vi, 1854, 533.—Barry, Proc. Boston Soc. Nat. Hist., v, 1854, 1, in text (Wisconsin; occas.).—Brewer, North Amer. Ool., i, 1857, 28, pl. 3, fig. 25.—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 28.—Maximilian, Journ. für Orn., 1858, 18.—Baird, Cat. North Amer. Birds, 1859, No. 25.—Willis, Ann. Rep. Smithsonian Inst. for 1858 (1859), 281 (Nova Scotia).—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 20 (monogr.); No. 36, livr. 10, 1873, 108 (crit.).—Newcome, Ibis, 1865, 549 (Scotland).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City).—Gray, Hand-list, i, 1869, 7, No. 53.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 23 (lower Wabash Valley, res.); Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 439; Man. North Amer. Birds, 1887, 237; Orn. Illinois, i, 1889, 472; Man. North Amer. Birds, ed. 2, 1896, 234.—Allen, Bull. Mus. Comp. Zool., iii, 1872, 130 (Leavenworth, Kans.); Proc. Manchester Inst. Sci. and Arts, iv, 1902, 98 (New Hampshire, res.).—Coues, Key North Amer. Birds, 1872, 217, part; Check List North Amer. Birds, 1873, No. 352; ed. 2, 1882, No. 520; Key

[44] Described as having only two white bands on tail!

North Amer. Birds, ed. 2, 1884, 545.—Snow, Birds Kansas, 1873, 2 (Lawrence, Kans.).—Hatch, Bull. Minnesota Acad. Sci., 1874, 51 (Minnesota; winter).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 191, part (Delaware); Hand-list, i, 1899, 246.—Boies, Cat. Birds Southern Michigan, 1875, No. 137 (s. Michigan; res.).—Gurney, Ibis, 1876, 232, 233, part (crit.); List Diurn. Birds Prey, 1884, 67; Cat. Birds Prey, 1894, 24.—Nelson, Bull. Essex. Inst., viii, 1876, 119 (ne. Illinois; common migr.); ix, 1877, 42 (s. Illinois; common), 50, in text (s. Illinois, Fox Prairie), 58 (Cairo, Ill.; common), 63 (w. of Anna, Union County), 65 (s. Illinois).—Gibbs, U. S. Geol. and Geogr. Surv. Bull. 5, 1879, 490 (Michigan; summer res.).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; common).—Dalgleish, Bull. Nuttall Orn. Club, v, 1880, 143 (1 British record).—Wheaton, Rep. Birds Ohio, 1882, 428, 579 (Ohio; syn.; descr.; breeds).—American Ornithologists' Union, Check-list, 1886, No. 339; ed. 2, 1895, No. 339; ed. 3, 1910, 158.—Chapman, Auk, v, 1888, 271 (Gainesville, Fla., in winter).—Goss, Hist. Birds Kansas, 1891, 264 (Kansas; descr.; eggs).—Thompson, Proc. U. S. Nat. Mus., xiii, 1891, 529 (e. Manitoba).—Bendire, Life Hist. North Amer. Birds, i, 1892, 219, pl. 6, figs. 1–5.—Hatch, Notes on Birds Minnesota, 1892, 188, 452 (Minnesota; descr.; nest.).—Fisher, Hawks and Owls United States, 1893, 62, pl. 8.—Kennard, Auk, xi, 1894, 197 [=210], 270 [=280] (Brookline, Mass.; habits, etc.).—Lantz, Trans. Kansas Acad. Sci., 1897–98 (1899), 255 (Kansas; common).—Cobeaux, Ottawa Nat., 1900, 28 (s. Saskatchewan, summer res.).—Nash, Check List Birds Ontario, 1900, 29 (Ontario; common res.); Check List Vert. Ontario: Birds, 1905, 40 (Ontario; breeds).—Beyer, Proc. Louisiana Soc. Nat. for 1897–99 (1900), 99 (Louisiana; winter res.).—Fleming, Auk, xviii, 1901, 37 (Parry Sound and Muskoka, nw. Ontario, breeding).—Preble, North Amer. Fauna, No. 22, 1902, 106 (York Factory, Hudson Bay).—Dawson, Birds Ohio, 1903, 405 (Ohio; descr.; distr.).—Jones, Birds Ohio, rev. cat., 1903, 93 (Ohio; res.; food habits).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 63 (Wisconsin; habits).—Allison Auk, xxi, 1904, 477 (Baton Rouge Parish, La.).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 208 (Essex County, Mass.).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 187 (Cambridge region, Mass.; res.).—Anderson, Proc. Davenport Acad. Sci., xi. 1907, 249 (Iowa; habits).—Widmann, Birds Missouri, 1907, 97 (summer res.).—Knight, Birds Maine, 1908, 226 (summer res.).—Stone, Birds New Jersey, 1908, 163 (New Jersey; descr.; eggs; res.).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 464 (Illinois and Wisconsin).—Wayne, Birds South Carolina, 1910, 206 (res. in interior).—British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, 337 (one doubtful rec.).—Corrington, Auk, xxxix, 1922, 544 (Biloxi, Miss.; winter).—Griscom, Birds New York City Region, 1923, 128 (status, New York City region).—Johnston, Birds West Virginia, 1923, 88 (West Virginia).—Pindar, Wils. Bull., xxxvi, 1924, 205 (status, e. Arkansas).—Taverner, Birds Western Canada, 1926, 194 (hypoth.; fig.; descr.; w. Canada); Birds Canada, 1934, 127 (Canada; col. fig.; genl.); Can. Water Birds, 1939, 138 (Canada; descr.).—Johnson, Wils. Bull., xxxix, 1927, 157 (Lawrence, Kans.).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (eats snakes).—Errington, Condor, xxxv, 1933, 26 (food habits; Wisconsin).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 22 (Ontario; not uncommon; breeds).—Bond, Birds West Indies, 1936, 64, in footnote (crit.); Check List Birds West Indies, 1940, 23, in footnote; ed. 2, 1945, 23 (mentioned).—Lincoln, Bird-Banding, vii, 1936, 40 (banding recoveries).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 134

(Connecticut Valley, Mass.; habits).—Groebbels, Der Vögel, ii, 1937, 204, in text (uses leaves as nest lining).—Nice, Bird-Banding, viii, 1937, 134, in text (behavior).—Saunders, Auk, liv, 1937, 202, in text (Fairfield County, Conn.; food habits).—Errington and Breckenridge, Wils. Bull., l, 1938, 118, in text (Wisconsin; food habits).—Pettingill, Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 330 (Grand Manan; uncommon migr.; casual in summer).—Ricker and Clarke, Contr. Roy. Ontario Mus. Zool., No. 16, 1939, 7 (Ontario; Lake Nipissing; summer res.).—Allin, Trans. Roy. Can. Inst., xxiii, pt. 1, 1940, 95 (Darlington Township, Ontario; common in summer; nesting records).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 43 (Prince Edward County, Ontario; rare breeding; few migr.).—Pratt, Auk, lx, 1943, 99, in text (caught in trap; Connecticut).—Stewart, Auk, lx, 1943, 390 (Shenandoah Mountains; breeds).—Baumgartner, Wils. Bull., lvi, 1944, 210 (Oklahoma; Lake Carl Blackwell).—Behle, Condor, xlvi, 1944, 71 (Utah).—Goslin, Wils. Bull., lvii, 1945, 131 (Ohio; bones *ex* mounds).

Buteo (*Buteo*) *lineatus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261.

Buteo lineatus a. var. *lineatus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 66, part (Massachusetts; Wisconsin).—Coues, Birds Northwest, 1874, 354.

Buteo lineatus lineatus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 275.—Goode, U. S. Nat. Mus. Bull. 20, 1883, 309.—American Ornithologists' Union, Check-list, ed. 3, 1910, 158; ed. 4, 1931, 66.—Barrows, Michigan Bird Life, 1912, 274.—Bailey, Birds Virginia, 1913, 113 (Virginia; distr.; descr.; habits); Birds Florida, 1925, 69, pl. 37 (fig.; distr.; Florida).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 78.—Golsan and Holt, Auk, xxxi, 1914, 221 (Alabama; winter vis.; Hale County, 1 spec., Aug.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918 (monogr.; Iowa).—Burns, Orn. Chester County, Pa., 1919, 53 (common migr. and winter); Wils. Bull., xxxviii, 1926, in text (overcome by snake).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 167 (North Carolina; descr.; habits); rev. ed., 1942, 95 (North Carolina; habits; descr.).—Swann, Synopt. List Accip., pt. 2, 1919, 49; Synop. Accip., ed. 2, 1922, 80; Monogr. Birds Prey, i, 1928, 399 (monogr.).—Townsend, Mem. Nuttall Orn. Club, No. 5, 1920, 102 (Essex County, Mass.; habits).—Holt, Geol. Surv. Alabama Mus. Pap., No. 4, 1921, 50 (Alabama; food; spec.).—Hunt, Auk, xxxviii, 1921, 377 (Tillar, Ark.; common); xlviii, 1931, 237 (Little Rock, Ark.).—Over and Thoms, Birds South Dakota, 1921, 84 (South Dakota; distr.; habits).—Daley, Auk, xxxix, 1922, 180 (Frost Valley, Catskill Mountains, N. Y.).—Wilson, Auk, xxxix, 1922, 236 (Bowling Green, Ky.).—Soper, Auk, xl, 1923, 498 (Wellington and Waterloo Counties, Ontario).—Wood, Misc. Publ. Mus. Zool. Univ. Michigan, No. 10, 1923, 39 (North Dakota; habits).—Beck, Auk, xli, 1924, 292, in text (Pennsylvania German common names).—Burleigh, Wils. Bull., xxxvi, 1924, 77 (migr.; Center County, Pa.); xxxix, 1927, 160 (nesting; Laanna, Pike County, Pa.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 359 (Gulf coast of Mississippi; fairly common).—Howell, Birds Alabama, 1924, 136; ed. 2, 1928, 136 (genl.; Alabama).—Blincoe, Auk, xlii, 1925, 409 (status; Bardstown, Ky.).—Gloyd, Wils. Bull., xxxvii, 1925, 142 (econ. status, Kansas).—Pindar, Wils. Bull., xxxvii, 1925, 85 (status, Fulton County, Ky.).—Wheeler, Birds Arkansas, 1925, 50, xv, xxi (Arkansas; habits; distr.).—Taverner, Birds Western Canada, 1926, 194, in text (distr.); Birds Canada, 1934, 127, in text (Canada; descr.; habits).—Worthington and Todd, Wils. Bull., xxxviii, 1926, 211 (Choctawhatchee Bay, Fla.).—Cross, Bull. Northeastern Bird-Banding Assoc iii,

1927, 30, in text (banding).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 128, pls. 38, 40 (fig.; descr.; habits; New England).—Hausman, New Jersey Agr. Exp. Stat. Bull. 439, 1927, 23 (food; econ., New Jersey).—Bailey, Auk, xlv, 1928, 278 (winter; Chenier au Tigre, La.).—Linsdale, Univ. Kansas Sci. Bull. xviii, 1928, 538 (near Geary, e. Kansas).—Pickens, Wils. Bull., xl, 1928, 190 (South Carolina).—Sutton, Birds Pennsylvania, 1928, 62 (Pennsylvania; descr.; nest.; habits).—Cahn and Hyde, Wils. Bull., xli, 1929, 36 (ecol. distr.; Little Egypt, Ill.).—Cooke, Proc. Biol. Soc. Washington, xlii, 1929, 36 (Washington, D. C.).—Brooks, Wils. Bull., xlii, 1930, 246 (Cranberry Glades, W. Va.).—Pierce, Wils. Bull., xlii, 1930, 268 (Buchanan County, Iowa).—Snyder, Trans. Roy. Can. Inst., xvii, 1930, 187 (summer; King Township, Ontario).—Urner, Abstr. Linn. Soc. New York, Nos. 39–40, 1930, 72 (Union County, N. J.).—[Arthur], Birds Louisiana, 1931, 201, in text (status, Louisiana).—Bailey and Wright, Wils. Bull., xliii, 1931, 203 (s. Louisiana).—Baerg, Univ. Arkansas Agr. Exp. Sta. Bull. 258, 1931, 48 (descr.; distr.; etc.; Arkansas).—Bradley and Mowbray, Proc. Boston Soc. Nat. Hist., xxxix, 1931, 328 (Bermuda; occ.; spec.).—Nice, Birds Oklahoma, rev. ed., 1931, 72 (genl.; Oklahoma).—Peters, Check-list Birds of World, i, 1931, 233; Bird-Banding, vii, 1936, 13 (Pennsylvania; Maryland; New Hampshire; ext. parasites).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 23 (Missouri, except se. part; common summer; uncommon winter).—Groebbels, Der Vögel, i, 1932, 274 (food habits); ii, 1937, 171 (data on breeding biology).—Roberts, Birds Minnesota, i, 1932, 315 (distr.; habits; fig.; Minnesota).—Stoner, Roosevelt Wild Life Ann., ii, 1932, 418 (Oneida Lake region, N. Y.).—Griscom, Trans. Linn. Soc. New York, iii, 1933, 92 (Dutchess County, N. Y.; common summer res. in valleys; occas. in winter).—Hicks, Wils. Bull., xlv, 1933, 139, in text (Ohio; statistics for 14 years' observations), 179, in text (Ashtabula County, Ohio; uncommon); xlviii, 1936, 51, in text (Indiana; fall records).—Fitzpatrick, Wils. Bull., xlvi, 1934, 21, in text (unilateral ovaries); xlvii, 1935, 43, in text (blood system).—Poole, Auk, li, 1934, 20 (Kittatinny Ridge, Pa.); lv, 1938, 517, in text (weight and wing area).—Tyrrell, Auk, li, 1934, 25 (Whitefish Point, Mich.).—Wetherbee, Bird-Banding, v, 1934, 58, in text (meas.).—Broun, Auk, lii, 1935, 243, 245 (Hawk Mountain, Pa.; migr.); lvi, 1939, 434, in text (Hawk Mountain, Pa.; migr.).—Fisher, Proc. Biol. Soc. Washington, xlviii, 1935, 161 (Plummers Island, Md.).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 22, in text.—Bent, U. S. Nat. Mus. Bull. 167, 1932, 180 (life hist.).—Murphey, Contr. Charleston Mus., ix, 1937, 12 (Savannah Valley, Ga.; common winter).—Stone, Bird Studies Old Cape May, i, 1937, 277 (New Jersey; status; habits).—Wetmore, Proc. U. S. Nat. Mus., lxxxiv, 1937, 405 (West Virginia; near Huntington; spec.); lxxxvi, 1939, 181 (Tennessee; fairly common; many records; spec. from Hickory Withe); lxxxviii, 1940, 534 (Kentucky; many records; spec.; meas.).—Deaderick, Wils. Bull., 1, 1938, 262, in text (Hot Springs National Park, Ark.; uncommon res.).—MacLulich, Contr. Roy. Ontario Mus. Zool., No. 13, 1938, 8 (Algonquin Prov. Park, Ontario; occ.).—Oberholser, Bird Life Louisiana, 1938, 167 (Louisiana; winter: spec. examined from Tangipahoa Parish; Raceland; Baton Rouge; Calcasieu Parish).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 9 (Michigan; transient and summer resident; nests commonly; few winter).—Pettingill, Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 330 (Grand Manan).—Campbell, Bull. Toledo Mus. Sci., i, 1940, 55 (Lucas County, Ohio; uncommon res.).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 439 (Kansas;

rare summer in e. part).—Todd, Birds Western Pennsylvania, 1940, 142 (w. Pennsylvania; habits; syn; distr.; col. fig.; descr.).—Trautman, Misc. Publ. Mus. Zool. Univ. Michigan No. 44, 1940, 212 (Buckeye Lake, Ohio; fairly common spring and fall trans. and summer res.; rare or absent in winter; food; nesting habits).—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 12 (sw. Ohio; fairly reg. res.; very rare in winter).—Rapp, Auk, lviii, 1941, 572 (New Jersey; food habits).—Stabler, Auk, lviii, 1941, 560 (used in parasite experiment).—Cruickshank, Birds around New York City, 1942, 134 (New York City region).—Knowlton and Harmston, Auk, lx, 1943, 589 (Utah; food habits).—Hill, Auk, lxi, 1944, 230 (meas.).—Ernst, Auk, lxii, 1945, 452 (New York State).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 174 (Kansas; rare summer res. in e. part).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 34 (Georgia; migr.; winters).—Haecker, Moser, and Swenk, Nebraska Bird Review, xiii, 1945, 9 (Nebraska; uncommon permanent res.; breeds).—Hartman, Auk, lxiii, 1946, 52 (endocrines).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mount Katahdin region, Maine).

Poecilopternis lineatus Goode, U. S. Nat. Mus. Bull. 20, 1883, 337.—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 226 (Maine; New York).

Falco hyemalis Gmelin, Syst. Nat., i, pt. 1, 1788, 274 (New York, in winter; based on *Winter Falcon* Pennant, Arctic Zool., ii, 1785, 209).—Latham, Index Zool., i, 1790, 35.—Daudin, Traite d'Orn., ii, 1800, 110.—Shaw, Gen. Zool., vii, pt. 1, 1809, 153.—Wilson, Amer. Orn., iv, 1811, 73, pl. 35, fig. 1.—Bonaparte, Journ. Acad. Sci. Philadelphia, iii, pt. 2, 1824, 350; iv, 1825, 271 (Obs. Wilson's Amer. Orn., 1826, [11], [130]; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 33; Contr. Maclurian Lyc., i, 1827, 11.—Audubon, Orn. Biogr., Philadelphia ed., i, 1831, 364, pl. 71; v, 1839, 380.—Nuttall, Mem. Orn. United States and Canada, Land Birds, 1832, 106.

(?) *Falco hyemalis* β Gmelin, Syst. Nat., i, pt. 1, 1788, 274 ("Novaboracensi"; based on *Northern Falcon* Latham, Synop. Birds, i, p. 79).

(?) *Falco hyemalis* Var. Latham, Index Orn., Suppl., 1801, viii (New York).

Circus hyemalis Vieillott, Nouv. Dict. Hist. Nat., iv, 1816, 458.—Jameson, ed. Wilson's Amer. Orn., i, 1831, 87, 88.

Circus hiemalis Vieillot, Ois. Amer. Sept., i, 1807, 35, pl. 7.

Astur hyemalis Vieillot, Encycl. Meth., iii, 1823, 1273.

Astur hiemalis Jardine, ed. Wilson's Amer. Orn., ii, 1832, 72.

Nisus hiemalis Cuvier, Règne Anim., ed. 2, i, 1829, 334.

Buteo hyemalis Lesson, Traite d'Orn., 1831, 81.—Bonaparte, Geogr. and Comp. List, 1838, 3.

Buteo hiemalis Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 101.

Buteo fuscus Viellot, Ois. Amér. Sept., i, 1807, 31, pl. 5 (immature plumage); Nouv. Dict. Hist. Nat., iv, 1816, 466 (United States).

Astur fuscus Bonaparte, *in* Cuvier's Règne Anim., Ois. 1830, 37.

Falco buteoides Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 100 (Cambridge, Mass.; coll. T. Nuttall).

Buteo cooperi (not of Cassin) Allen, Amer. Nat., iii, 1869, 518 (Massachusetts).

(?) *Buteo lineatus elegans* (not *Buteo elegans* Cassin) Cooke, Birds Colorado, 1897, 75 (Table Rock and Fort Collins, Colo., 2 specs. seen).

BUTEO LINEATUS ELEGANS Cassin

WESTERN RED-SHOULDERED HAWK

Adult (sexes alike).—Similar to that of *B. l. lineatus*, but with the fuscous-black centers of the feathers of the top of the head, nape, intercapulars, and scapulars narrower, the margin wider and brighter, orange-cinnamon; the lesser upper wing coverts at the bend of the wing almost wholly bright hazel, the dusky chaetura drab terminal shaft spots much reduced in size; sides of head, chin, and throat more cinnamomeous; breast and upper abdomen more rufescent, deep cinnamon-rufous to hazel, and usually without any whitish bars; the rest of the underparts more heavily barred with cinnamon to hazel, the under tail coverts always broadly barred with cinnamon, the thighs heavily barred with the same or hazel; under wing coverts abundantly and narrowly barred with hazel.

Juvenal (sexes alike).—Similar to that of *B. l. lineatus*, but with the feathers of the upperparts more widely edged with cinnamon, and with the underparts more abundantly spotted and streaked with fuscous, the spots smaller, but much more numerous, and extending over the lower abdomen and under tail coverts as well; thighs barred with cinnamon.

Natal down.—Similar to that of *B. l. lineatus*.

Adult male.—Wing 288–305 (299.2); tail 196–204.1 (200.4); culmen from cere 20.3–21.3 (20.7); tarsus 72–76.3 (74.1); middle toe without claw 35–38.3 (36.1 mm.).[45]

Adult female.—Wing 298–312 (302); tail 190–204 (196.2); culmen from cere 20–22 (20.9); tarsus 75–78 (76.5); middle toe without claw 35–38 (36.8 mm.)[46]

Range.—Resident from eastern Oregon (Camp Harney), through California (chiefly in the San Joaquin and Sacramento Valleys and the San Diego lowlands: Escondido, San Onofre, Los Angeles, Santa Paula, Palo Alto, Sonoma, etc.), south to northwestern Baja California (San Rafael; Rosario), where rare. Formerly, or exceptionally, at least in winter, in northeastern Arizona (near Holbrook, Kayenta).

Recorded, on doubtful basis, from British Columbia (Burrard Inlet; Chilliwack).

Type locality.—California and New Mexico.

Falco hyemalis (not of Gmelin) TOWNSEND, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151 (nw. United States).

Buteo lineatus (not *Falco lineatus* Gmelin) GAMBEL, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 45 (California); Journ. Acad. Nat. Sci. Philadelphia, i, 1847, 26 (California).—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853,

[45] Five specimens, all from California.

[46] Four specimens from California.

451.—Heerman, Journ. Acad. Nat. Sci. Philadelphia, ii, 1853, 259 (California).—Coues, Key North Amer. Birds, 1872, 216, part.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 191, part (San Francisco, w. California; w. Mexico?).—?Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (w. Mexico).—DeMay, Condor, xliv, 1942, 229 (bones; Buena Vista Lake, Calif.).—Grant, Condor, xlvii, 1945, 263 (eating drone bees; California).—Wilson, Condor, xlvii, 1945, 150 (Kettleman Hills area, Calif.).—Mowbray, Condor, xlix, 1947, 173 (Nacimiento River, Calif.).

Buteo elegans Cassin, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 281 (California; coll. Acad. Nat. Sci. Philadelphia); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 28; 1860, Atlas, pls. 2, 3.—Strickland, Orn. Syn., i, 1855, 38.—Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (Santa Isabel, Calif.); Cat. North Amer. Birds, 1859, No. 26.—Heermann, Rep. Pacific R. R. Surv., x, pt. iv, No. 2, 1859, 32 (n. California s. to Colorado Desert).—Kennerly, Rep. Pacific R. R. Surv., x, No. 3, 1859, 19 (Little Colorado River, Ariz.).—Xantus, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 190 (Fort Tejon, Calif.).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 147 (Santa Clara, Calif.).—Gray, Hand-list, i, 1869, 7, No. 52.—Cooper, Orn. California, Land Birds, 1870, 477.—Gurney, Ibis, 1876, 232, in text (crit.), 233, in text (measurements); Cat. Birds Prey, 1894, 24.—Sharpe, Hand-list, i, 1899, 257.—Palmer, Condor, xxx, 1928, 272, in text (patronymics).—Grinnell, Univ. California Publ. Zool., xxxviii, 1932, 266 (type locality; crit.).

Buteo elegans ? Newberry, Rep. Pacific R. R. Surv., vi, pt. 4, Chapt. 2, 1857, 75 (n. California; s. Oregon).

Buteo lineatus elegans Coues, Check List North Amer. Birds, 1873, No. 352a; ed. 2, 1882, No. 521; Key North Amer. Birds, ed. 2, 1884, 546.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 257 (diagnosis), 277; Bull. Essex Inst., vi, 1874, 172 (Sacramento Valley); Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 439a; Man. North Amer. Birds, 1887, 237; ed. 2, 1896, 235.—Gurney, List Diurn. Birds Prey, 1884, 67.—American Ornithologists' Union, Check List, 1886, No. 339 *b*; ed. 2, 1895, 132; ed. 3, 1910, 158; ed. 4, 1931, 67.—Bryant, Proc. California Acad. Sci., ser. 2, 1889, 280, in part (San Rafael, Lower California).—Bendire, Life Hist. North Amer. Birds, i, 1892, 226, pl. 6, fig. 9.—Brooks, Auk, xvii, 1900, 105 (Brit. Columbia w. of Cascade Range); xxxiv, 1917, 38 (Chilliwack, Brit. Columbia).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 66, in part (Lower California; Sonora?).—McGregor, Pacific Coast Avif., No. 2, 1901, 6 (Santa Cruz County, Calif.; breeds).—Bailey, Handbook Birds Western United States, 1902, 157 (w. United States; descr.; habits); Birds New Mexico, 1928, 164 (genl.; New Mexico).—Grinnell, Pacific Coast Avif., No. 3, 1902, 32 (California; common res.; breeds chiefly in Upper Sonoran interior valleys); No. 8, 1912, 10 (California); No. 11, 1915, 65 (California; common res. in Austral Zone, breeding n. to Point Reyes, Marin County; Mount St. Helens and Fort Crook, Shasta County); Univ. California Publ. Zool., xxxii, 1928, 109 (distr.; Lower California).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 33 (Oregon range).—Sharpe, Condor viii, 1906, 144 (=148) (San Diego County, Calif.; nesting habits; descr. nest and eggs; 2 cuts).—Thayer and Bangs, Condor, ix, 1907, 136 (El Rosario, Lower California).—Linton, Condor, x, 1908, 197 (Buena Vista Lake, Kern County, Calif.).—Kermode, Prov. Mus. Victoria, 1909, 44 (Burrard Inlet and Chilliwack, Brit. Columbia).—Willett, Pacific Coast Avif., No. 7, 1912, 46 (s. California; Pacific Slope; fairly common res.); No.

21, 1933, 42 (sw. California; Pacific slope; fairly common res.; now rather rare).—Swann, Synopt. List Accip., pt. 2, 1919, 49; Synop. Accip., ed. 2, 1922, 81; Monogr. Birds Prey, i, 1928, 400 (monogr.).—Bryant, Condor, xxiii, 1921, 65 (eating caterpillars).—Dawson, Birds California (stud. ed.), iii, 1923, 1683 (genl.; California).—Grinnell and Storer, Anim. Life Yosemite, 1924, 289 (descr.; distr.; habits; Yosemite).—Hanna, Condor, xxvi, 1924, 148, in text (egg weight).—Gardner, Proc. U. S. Nat. Mus., lxvii, art. 19, 1925, pl. 2 (structure of tongue).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 102 (descr.; chars.).—Taverner, Birds Western Canada, 1926, 194, in text (distr.); Birds Canada, 1934, 127, in text (Canada; descr.).—Dixon, Condor, xxx, 1928, 228 (life hist.).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 188 (distr.; Lassen Peak region, n. California).—Peters, Check List Birds of World, i, 1931, 233.—Bent, U. S. Nat. Mus. Bull. 167, 1937, 203 (life hist.).—Groebbels, Der Vögel, ii, 1937, 171 (data on breeding biol.).—Huey, Auk, lviii, 1941, 270 (n. Lower California).—Moore, Condor, xlv, 1943, 233 (Prospect Park, Redlands, Calif.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 101 (California; permanent resident).—Hill, Auk, lxi, 1944, 230 (meas.).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 290 (Sonora; hypothetical).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 37 ("Navaho Country," se. Utah and ne. Arizona; very rare, probably accidental).

Buteo lineatus b. *elegans* Coues, Birds Northwest, 1874, 355.

Buteo lineatus β elegans Ridgway, Orn. 40th Parallel, 1877, 582 (Sacramento Valley); *in* Belding, Proc. U. S. Nat. Mus., i, 1879, 436 (Stockton, Calif.; descr. nest).

Buteo elegans lineatus Anthony, Zoe, iv, 1893, 234 (n. Lower California, s. to Ensenada).

Pœcilopternis elegans Goode, U. S. Nat. Mus. Bull. 20, 1883, 337.

BUTEO LINEATUS TEXANUS Bishop

Texas Red-shouldered Hawk

Adult (sexes alike).—Similar to that of *Buteo lineatus elegans*, but with the margin of the feathers of the head, nape, scapulars, interscapulars, and upper back more richly rufous and broader, giving a more rufous appearance to the whole; breast with small buffy spots or broken bars; the shaft lines of the breast feathers conspicuously dark.

Juvenal (sexes alike).—Similar to that of *Buteo lineatus lineatus*, but slightly blacker above and with the underparts more heavily spotted and with the spotting extending over the thighs.

Natal down.—Similar to that of *Buteo lineatus lineatus*.

Adult male.—Wing 302–313 (309); tail 181–198 (190.1); culmen from cere 20.1–22.0 (21); tarsus 73.3–76.3 (75.4); middle toe without claw 32.4–37.3 (34.9 mm.) (6 specimens).

Adult female.—Wing 329.6–337 (334.2); tail 208–218.9 (212.6); culmen from cere 22–23 (22.6); 79.5–82 (80.5); middle toe without claw 39–42 (40.1 mm.) (3 specimens).

Range.—Resident (?) in southeastern and south-central Texas from Brownsville and Corpus Christi to the vicinity of San Antonio south

into Mexico as far as the City of Mexico, Orizaba, and Zacatecas. Found also in southern Louisiana (Baton Rouge Parish) as a winter wanderer (specimens September to November).

Type locality.—Corpus Christi, Tex.

Buteo elegans (not of Cassin) Dresser, Ibis, 1865, 325 (near San Antonio, Tex.).—(?) Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 9 (Arizona).—(?) Sclater and Salvin, Proc. Zool. Soc. London, 1869, 364 (City of Mexico; Orizaba, Veracruz; crit.).

(?) [*Buteo*] *lineatus* Sclater and Salvin, Nom. Av. Neotr., 1873, 119 (Mexico; "Am. Centrali").

Buteo lineatus (not *Falco lineatus* Gmelin) Kumlien, Field and Forest, 1877, 128 (Texas).—Lloyd, Auk, iv, 1887, 188 (Tom Green and Concho Counties, Tex., res.).—Chapman, Bull. Amer. Mus. Nat. Hist., iii, 1891, 322 (Corpus Christi, Tex., crit.).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 66, part (Sonora?; Chihuahua; City of Mexico; Orizaba, Veracruz; Zacatecas).

Buteo lineatus alleni (not of Ridgway) Attwater, Auk, ix, 1892, 234 (San Antonio, Tex., res.).—Carroll, Auk, xvii, 1900, 342 (Refugio County, Tex., in winter).—Cahn, Wils. Bull., xxxiii, 1921, 172 (Port Caddo, Baldwin, and Star Ranch, nc. Texas, May, June).

Buteo lineatus texanus Bishop, Auk, xxix, 1912, 232 (Corpus Christi, Tex.; coll. L. B. Bishop).—Swann, Synopt. List Accip., pt. 2, 1919, 50; Synop. Accip., ed. 2, 1922, 81; Monogr. Birds Prey, i, 1928, 402 (monogr).—American Ornithologists' Union, Auk, xl, 1923, 518 (Check-list, No. 339c); Check-list, ed. 4, 1931, 67.—Griscom and Crosby, Auk, xlii, 1925, 535 (stat.; Brownsville, Tex.).—Peters, Check-list Birds of World, i, 1931, 233.—Brooks, Auk, l, 1933, 61 (not uncommon; Brownsville, Tex.; 2 spec.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 210 (life hist.).—Hill, Auk, lxi, 1944, 230 (meas.).—McAtee, Wils. Bull., lvi, 1944, 154 (Gulf coast migr.).

BUTEO LINEATUS ALLENI Ridgway

Florida Red-shouldered Hawk

Adults (sexes alike).—Similar to *B. l. lineatus*, but smaller and paler above and below, with no rufous on the upperparts except the lesser upper wing coverts and with the head and neck grayish with little if any rufous tinge; feathers of crown and nape hair brown with fuscous black shafts; interscapulars, scapulars, and feathers of upper back fuscous-black medially, bordered with grayish hair brown slightly washed with tawny basally; median and greater upper wing coverts fuscous black and white; chin and throat buffy white, broadly striped with hair brown on the throat; breast grayish buffy white to pinkish buff obscurely banded with grayish buffy white, the feathers with dark shafts; rest of underparts buffy white barred with light pinkish cinnamon to cinnamon buff, the thighs likewise barred, but the under tail coverts usually unbarred; iris dark warm sepia; orbital ridge greenish; cere, gape, and edge of eyelid light cadmium yellow; feet dull cadmium, paler on tarsi than on toes.

Juvenal (sexes alike).—Similar to *B. l. lineatus* but smaller, the

ventral spots smaller as a rule and somewhat more numerous; under tail coverts and thighs only sparsely marked with dusky.

Natal down.—Similar to that of *B. l. lineatus*.

Adult male.—Wing 284–330 (300.9); tail 177.5–217.6 (188); culmen from cere 18–25.5 (21); tarsus 70.1–81.6 (76.9); middle toe without claw 33–40.8 (36 mm.).[47]

Adult female.—Wing 281–340 (316.2); tail 179.1–214.5 (196.6); culmen from cere 20–23.5 (22.7); tarsus 70.2–83 (78.9); middle toe without claw 35–41.5 (37.7 mm.).[48]

Range.—Resident from eastern Texas (west to about the vicinity of San Antonio), eastern Oklahoma (Craig, Washington, Tulsa, Sequoyah, and Cleveland Counties), and southwestern Arkansas (Texarkana); through Louisiana, Mississippi, and Alabama to Florida (except the extreme southern tip of the peninsula and the Florida Keys), Georgia, and South Carolina, north at least to the vicinity of Charleston in the east and to Newberry County in the western part of the State.

One winter record from Jalisco, Mexico (La Barca).

Type locality.—Tampa, Fla.

Buteo lineatus (not *Falco lineatus* Gmelin) Allen, Bull. Mus. Comp. Zool., ii, 1871, 329, part (Volusia, Blue Springs, Enterprise, Hawkinsville, and Jacksonville, Fla.)—(?) Scott, Auk, vi, 1889, 247 (Tarpon Springs, Fla., breeding; said, however, to be true *B. lineatus*).—Allison, Auk, xxi, 1904, 477 (Baton Rouge Parish, La.; resident).—Stockard, Auk, xxii, 1905, 152 (breeding habits in Mississippi).

(?) [*Buteo lineatus*] alpha *lineatus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 66, part (Savannah, Ga.).

Buteo lineatus alleni Ridgway, Proc. U. S. Nat. Mus., vii, 1885, 514 (Tampa, Fla.; coll. U. S. Nat. Mus.); Man. North Amer. Birds, 1887, 237; ed. 2, 1896, 235.—American Ornithologists' Union, Check-list, 1886, No. 339 a; ed. 2, 1895, 131; ed. 3, 1910, 158; ed. 4, 1931, 67.—Scott, Auk, vi, 1888, 247 (Tarpon Springs, Fla.).—Mortimer, Auk, vii, 1890, 339 (Orange County, Fla.; habits).—Bendire, Life Hist. North Amer. Birds, i, 1892, 224.—Beyer, Proc. Louisiana Soc. Nat. for 1897–99 (1900), 99 (Louisiana, res., breeding).—Williams, Auk, xxi, 1904, 454 (Leon County, Fla.).—Beyer, Allison, and Kopman, Auk, xxv, 1908, 442 (Louisiana, common res.).—Wayne, Birds South Carolina, 1910, 74 (res. breeding; habits; food; descr. nest and eggs).—Wright and Harper, Auk, xxx, 1913, 495 (Okefenokee Swamp, Ga.).—Golsan and Holt, Auk, xxxi, 1914, 221 (Alabama, res.; descr. nests).—Swann, Synopt. List Accip., pt. 2, 1919, 49; Synop. Accip., ed. 2, 1922, 81; Monogr. Birds Prey, i, 1928, 401 (monogr.).—Holt, Geol. Surv. Alabama, Mus. Pap. No. 4, 1921, 50 (Alabama; common; breeds; food spec.).—Howell, Auk, xxxviii, 1921, 256 (Royal Palm Hammock, Fla.; common); Birds Alabama, 1924, 136; ed. 2, 1928, 136 (distr.; habits, Alabama).—Pearson, Wils. Bull., xxxiv, 1922, 87 (Cumberland Island, Ga.).—Nice and Nice, Birds Oklahoma, 1924, 42 (genl.; Oklahoma).—Bent, Wils. Bull., xxxvi,

[47] Thirty specimens from Florida, Alabama, Missouri, Arkansas, Texas, and Mexico.

[48] Fourteen specimens from Florida, Georgia, and Mexico.

1924, 13 (Victoria County, se. Texas); U. S. Nat. Mus. Bull. 167, 1937, 199 (life hist.).—Bailey, Birds Florida, 1925, 70, pl. 37 (fig., distr., Florida).—Simmons, Birds Austin Region, 1925, 102 (Austin, Tex.; habits; nests and eggs; etc.).—Wheeler, Birds Arkansas, 1925, 51, xv (descr.; distr.; Arkansas).—Fargo, Wils. Bull., xxxviii, 1926, 149 (Pinellas and Pasco Counties, Fla.).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 428 (habits, s. Florida).—Worthington and Todd, Wils. Bull., xxxviii, 1926, 212 (Choctawhatchee Bay, Fla.).—Bent and Copeland, Auk, xliv, 1927, 380 (common; nesting, Hillsborough and Polk Counties, Fla.).—Christy, Auk, xlv, 1928, 288 (Everglades; edge of Big Cypress; s. Florida).—[Arthur], Birds Louisiana, 1931, 200 (descr.; status, Louisiana).—Baerg, Univ. Arkansas Agr. Exp. Stat. Bull. 258, 1931, 48 (descr.; range; Arkansas).—Bailey and Wright, Wils. Bull., xliii, 1931, 203 (status, s. Louisiana).—Nice, Birds Oklahoma, rev. ed., 1931, 72 (genl.; Oklahoma).—Peters, Check-list Birds of World, i, 1931, 233 (distr.).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 23 (se. Missouri; probably common summer res.; uncommon in winter).—Howell, Florida Bird Life, 1932, 176 (genl.; Florida).—Peters, Bird-Banding, vii, 1936, 13 (Florida, South Carolina, Alabama, Georgia; ext. parasites).—Murphey, Contr. Charleston Mus., ix, 1937, 12 (Savannah Valley, Ga.; abundant res.).—Oberholser, Bird Life Louisiana, 1938 169s (Louisiana; fairly common res.; distr.; breeds).—Sutton, Ann. Carnegie Mus., xxvii, 1938, 176 (Tarrant County, Tex.; breeds).—Wetmore, Proc. U. S. Nat. Mus., lxxxvi, 1939, 181, in text.—Davis, Condor, xlii, 1940, 81, in text (Brazos County, Tex.; res.).—McIlhenny, Auk, lx, 1943, 544 (s. Louisiana).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 359 (Mississippi, coastal area; uncommon res.).—Hill, Auk, lxi, 1944, 230 (meas.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 35 (Georgia; breeds).

Buteo alleni Gurney, Cat. Birds Prey, 1894, 24.—Sharpe, Hand-list, i, 1899, 257.

BUTEO LINEATUS EXTIMUS Bangs

BANGS'S RED-SHOULDERED HAWK

Adults (sexes alike).—Similar to *B. l. alleni*, but smaller and averaging slightly paler; crown and occiput with more buffy white on the feather edges; entire underparts pale buffy white rather faintly barred on the upper abdomen and thighs with pale cinnamon-buff.

Juvenal (sexes alike).—Similar to *B. l. alleni*, but smaller.

Adult male.—Wing 278–291 (283.2); tail 169–180 (173.4); culmen from cere 18.8–21.1 (20); tarsus 70.5–75.5 (72.1), middle toe without claw 31–34.2 (33.6 mm.) (5 specimens).

Adult female.—Wing 299–305; tail 179.1–182.5; culmen from cere 21–22; tarsus 76–76.4; middle toe without claw 35.5–37 mm. (2 specimens).

Range.—Resident in Florida south of Lake Okeechobee and in the Florida Keys; recorded from Cape Sable, Royal Palm Hammock, New River, Ritta, Cape Florida, Key Largo, Indian Key, Big Pine Key, Upper Matecumbe, Boca Chica, Bahia Honda, Grassy Key, and the Tortugas

Type locality.—Cape Florida, Fla.

Buteo lineatus (not *Falco lineatus* Gmelin) Allen, Bull. Mus. Comp. Zool., ii, 1871, 329, part (Cape Florida and Indian Key, Fla.).

Buteo lineatus alleni (not of Ridgway) Scott, Auk, vii, 1890, 309 (Dry Tortugas, Fla.).—Fowler, Auk, xxiii, 1906, 399 (Boca Chica, Big Pine, and Grassy Keys, Fla.).

Buteo lineatus extimus Bangs, Proc. New England Zool. Club, vii, 1920, 35 (s. end Key Biscayne, Cape Florida, Fla.; coll. Mus. Comp. Zool.).—Oberholser, Auk, xxxviii, 1921, 266 (Florida Keys.).—Swann, Synop. Accip., ed. 2, 1922, 81; Monogr. Birds Prey, i, 1928, 401 (monogr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 189 (type in Mus. Comp. Zool.).—Peters, Check-list Birds of World, i, 1931, 233.—American Ornithologists' Union, Check-list, ed. 4, 1931, 67.—Bailey, Wils. Bull., xliv, 1932, 186 (corr.).—Howell, Florida Bird Life, 1932, 177 (genl.; Florida).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 208 (life hist.).—Hill, Auk, lxi, 1944, 230 (meas.).

BUTEO RIDGWAYI (Cory)

Ridgway's Haitian Insect Hawk

Adult male.—Forehead, crown, and occiput light neutral gray to deep neutral gray streaked with narrow blackish shaft streaks; scapulars, interscapulars, and upper back fuscous with a variable amount of grayish cast on the interscapulars and with narrow, not very distinct tawny-olive margins on most of the feathers (these margins largely gone in worn specimens); lesser upper wing coverts largely russet, especially at the bend of the wing, becoming fuscous edged with russet toward the body; median and greater upper wing coverts dull fuscous indistinctly narrowly edged with pale russet; primaries externally fuscous-black to blackish, narrowly tipped with whitish; the third and fourth from the outermost ones with a whitish spot at the emargination of the outer web, the outermost two sometimes also with a white spot on the outer web; the inner webs of all the primaries white for their basal three-fifths, barred with fuscous-black, the dark bars becoming ferruginous toward the inner edge; third to fifth primaries from the outside with the outer webs emarginated; the four outermost with the inner webs emarginated; secondaries dull fuscous narrowly tipped with white and becoming white on the inner webs, which are banded with dull fuscous, the bars becoming ferruginous at the inner edge; lower back varying from argus brown to Vandyke brown mixed with fuscous; median upper tail coverts dull fuscous, the lateral ones tipped and externally broadly margined with Vandyke brown and externally spotted with white (the white marks usually concealed by overlapping feathers); tail fuscous, the lateral rectrices paling very slightly on the inner margins of the inner webs, narrowly tipped with, and crossed by three or four narrow bars of white; under surface of rectrices tawny hair brown; chin and middle of upper throat white with deep neutral gray shaft streaks; lores, cheeks, auriculars, sides of throat, lower

throat, and breast pale neutral gray to light neutral gray with fine shaft streaks of deep neutral gray; the lower breast narrowly barred with ochraceous-tawny to bright tawny; abdomen, flanks, thighs, and and under tail coverts whitish abundantly and narrowly barred with tawny to hazel, the bars brightest and most rufescent on the thighs; where the white is often almost obliterated, bars fewest and most widely spaced on the under tail coverts; under wing coverts white barred with tawny; iris brown, brownish yellow, or pale brownish yellow; cere yellowish green; bill leaden color, tipped with black, tarsus greenish, toes yellowish, claws black.

Adult female.—Very similar to the adult male, but the forehead, crown, and occiput usually with a brownish wash, the lower back averaging darker, duller, less bright brownish, more dull fuscous; the rectrices with four irregular narrow white bars.

Juvenal male.—Similar to the adult male above but top of head fuscous instead of gray; the nape streaked with white; lesser upper wing coverts at bend of wing less russet, more uniform with rest of the upper wing coverts; lower back not more reddish brown than upper back; pale areas of remiges much suffused with orange-cinnamon, and more narrowly barred with fuscous-black; upper tail coverts fuscous barred with white and washed with hazel; tail narrowly barred with fuscous-black and white, the latter much suffused with cinnamon-rufous or hazel (about 10–12 dark bars and an equal number of pale interspaces) edged and tipped with dull sepia; below very different from adult; chin, throat, sides of head, as in adult but breast, abdomen, sides, flanks, and under tail coverts white narrowly streaked with ochraceous-tawny; the thighs white spotted with ochraceous-tawny; under wing coverts white spotted sparingly with tawny.

Juvenal female.—Similar to juvenal male, but with the interscapulars, back, rump, and upper tail coverts darker, fuscous-blackish; the thighs suffused, not spotted, with ochraceous tawny.[49]

Natal down.—Said to be white (Bond).

Adult male.—Wing 210–235 (223.5); tail 137–151.5 (147.3); culmen from cere 17–19.7 (18.6); tarsus 60.4–65.5 (64); middle toe without claw 30.4–35.6 (32.6 mm.) (9 specimens).

Adult female.—Wing 236–244 (241); tail 148.9–163 (159.3); culmen from cere 19.7–21 (20.4); tarsus 63.2–68.5 (65.8); middle toe without claw 32.7–35.8 (33.6 mm.) (5 specimens.)

Range.—Resident in the island of Hispaniola, and islets off the coast (Île à Vache, Petite Cayemite Island, Grand Cayemite Island, Gonave Island); rather rare throughout its range.

Type locality.—Santo Domingo=Samaná.

[49] Only one specimen of each sex examined. With a greater series this difference may be found to be merely individual.

Rupornis ridgwayi Cory, Quart. Journ. Boston Zool. Soc., ii, 1883, 46 (Magua, Samaná, or Almercan, Santo Domingo; coll. C. B. Cory); Auk, i, 1884, 4 (description); iv, 1887, 38, 39 (descr.; syn.); Birds Haiti and San Domingo, 1885, 121, pls. [17, 18]; Birds West Indies, 1889, 196; Cat. West Indian Birds, 1892, 10, 99, 130.—Gurney, List Diurn. Birds Prey, 1884, 72; Cat. Birds Prey, 1894, 25.—Cory, List Birds West Indies, 1885, 22; rev. ed., 1886, 22.—Reichenow and Schalow, Journ. für Orn., 1885, 457 (reprint of orig. descr.).—Tristram, Cat. Coll. Birds H. B. Tristram, 1889, 61, 271 (Samaná; specimen).—Tippenhauer, Die Insel Haiti, 1892, 319, 322 (listed from Haiti).—Cherrie, Contr. Orn. San Domingo, 1896, 22 (seen only; no specs.).—Christy, Ibis, 1897, 335 (Río Yuna, Santo Domingo).—Sharpe, Handlist, i, 1899, 257.—Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, 1909, 357 (Miranda, Santo Domingo).—Swann, Synop. Accip., ed. 2, 1922, 94; Monogr. Birds of Prey, i, 1930, 444 (monogr.).—Bond, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928 (1929) 493 (distr.; habits; Haiti).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517 (Santo Domingo).—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 114 (habits; distr.; etc.; Hispaniola).

Rupornis magnirostris ridgwayi Swann, Synopt. List Accip., pt. 2, 1919, 56.

Coryornis ridgwayi Ridgway, Auk, xlii, 1925, 585, in text (genotype of *Coryornis* Ridgway).

Buteo ridgwayi Danforth, Auk, xlvi, 1929, 362 (Santo Domingo City, Haina, Gonave Island).—Peters, Check-list Birds of World, i, 1931, 233.—Wetmore, Proc. U. S. Nat. Mus., lxxxi, art. 2, 1932, 6, 7, 8, 14 (Île à Vache; Petite Cayemite Island; Grand Cayemite Island; Haiti; crit.).—Wetmore and Lincoln, Proc. U. S. Nat. Mus., lxxxii, art. 25, 1933, 10 (Île à Vache), 13 (Beata Island), 21 (near Geffrard, Haiti; Île à Vache and Beata Island).—Bond, Birds West Indies, 1936, 61, in text, 64, in text, and footnote (West Indies; crit.), 67, in text, 414 (West Indies; Hispaniola, descr.; local names); Check List Birds West Indies, 1940, 23 (Hispaniola; locally common); ed. 2, 1945, 23.

BUTEO SWAINSONI Bonaparte

Swainson's Hawk

Adult male.—Pale phase: Forehead whitish or pale buff, crown, occiput, nape, cheeks, auriculars, sides of throat, scapulars, interscapulars, upper and lower back, rump, and upper wing coverts more or less uniform dark grayish brown, fuscous to chaetura drab, the feathers edged with grayish tawny-olive to cinnamon; a concealed white patch on the nape; median upper tail coverts dark like the rump, the lateral ones whitish more or less washed with pale tawny-olive, and barred with fuscous to dark hair brown; secondaries fuscous to chaetura drab becoming somewhat paler basally on their inner webs where obscurely banded with chaetura drab; primaries fuscous-black to chaetura black, also becoming slightly lighter basally on their inner webs where banded with chaetura drab; the tip of the longest primaries extending beyond the ends of the longest secondaries for a distance equal to more than one-third the length of the wing; only the three outermost primaries emarginated on their inner webs; rectrices light mouse gray to mouse gray more or less tinged with brownish,

especially on the median pair, tipped with grayish or buffy white, subterminally obscurely and broadly banded with chaetura drab to chaetura black, and barred (9 or 10 bars) narrowly with the same, and whitish basally; the barring usually not extending to the outer webs of the outermost pair of rectrices; the gray of these feathers often with a dull silvery sheen; lores, chin, and middle of throat white; a very broad pectoral area covering the entire breast pinkish cinnamon to light russet, the feathers with narrow dusky shaft streaks, the upper part of this area often washed with darker brown; rest of underparts including under wing coverts, under tail coverts, and thighs white or buffy white, the feathers of the sides of the upper abdomen incompletely barred with snuff brown, sayal brown, or tawny-olive; sometimes almost immaculate; the under wing coverts with a few small fuscous bars; iris dark Vandyke brown; bill blackish; cere pale greenish yellow; feet wax yellow.

Adult female.—Pale phase: Similar to the male, but with relatively less cinnamon or tawny edgings on the feathers of the upperparts; the forehead buffy mixed with dull fuscous, or wholly fuscous like the crown; the pectoral area darker, less rufous—Saccardo's umber to sepia; soft parts as in male.

Adult.—Rufous phase (sexes alike in color): Entirely similar to the pale phase, but with the entire abdomen, sides, flanks, thighs, and under tail coverts heavily washed with pale sayal brown to hazel and obscurely but narrowly and abundantly barred with russet; under wing coverts pale tawny marked with sayal brown and fuscous; forehead as in female of pale phase, and concealed nape patch buffy and reduced in size.

Adult.—Black phase (sexes alike in color): Remiges and rectrices as in pale phase; all the rest of the body and head, except the under tail coverts, fuscous black to chaetura black, the feathers of the upper back and the upper wing coverts with slightly paler edges; under tail coverts buffy whitish heavily marked and barred with sayal brown to fuscous; the dusky bars on the rectrices broader than in the pale phase; soft parts as in pale phase.[50]

Immature.—There is no true immature plumage; the juvenal plumage appears to be retained through the first winter (that is, there is no autumnal postjuvenal molt) and the transition to the adult plumage seems to be rather slow and irregular (judged from the number of intermediate specimens seen).

[50] Individuals exhibiting every stage of intermediacy between all three phases may be found in any long series. Thus, while there are numerous specimens that do not match any of the above descriptions in every respect, the three phases are as given here.

Juvenal.—Pale phase (sexes alike): Very different from the adults below, less so above; upperparts as in adult, but the forehead broadly, not narrowly, buffy white, the feathers of the crown, occiput, and nape very broadly edged with buffy white to pale tawny making these areas seem light with fuscous-black shaft streaks; the tertials and median upper wing coverts much marked with buffy white or pale tawny, subterminally broadly tipped with fuscous-black and basally barred with same (in some specimens there is very little of the pale color—about as in adults); remiges as in adults; rectrices as in adults but with the barring extending to the outer webs of the outermost pair; cheeks and auriculars pinkish buff to cinnamon-buff narrowly streaked with fuscous-black; malar stripe fuscous-black; chin and middle of throat pinkish buff to cinnamon-buff as are also the rest of the underparts, usually becoming more cinnamomeous on the sides, flanks, and thighs; the breast and upper abdomen with large pear-shaped fuscous-black to dark fuscous-brown spots, the number and size of these spots very variable; lower abdomen, thighs, and under tail coverts unspotted, like the chin and throat; under wing coverts pinkish buff to cinnamon-buff, sparsely marked with fuscous; iris pale reddish brown; other soft parts as in adults.

Juvenal.—Rufous phase (sexes alike): Similar to the corresponding plumage of the pale phase, but with the pale areas on the upperparts washed with rufous; the edges of the feathers orange-cinnamon to hazel; the upper tail coverts, however, largely white with little rufescent wash; underparts definitely washed with cinnamon; the chin and middle of the throat not immaculate, but with a few fuscous spots; the spots on the breast and upper abdomen indefinitely margined with cinnamon and extending over the lower abdomen, flanks, and under tail coverts as well; the thighs heavily tinged with hazel and broadly barred with fuscous.

Juvenal.—Black phase (sexes alike): Much darker than the pale phase; upperparts similar to that of the pale phase, but with the dark parts blacker and with the dusky bars on the upper tail coverts much wider; the pale areas on the tertials and upper back more restricted basally and hence less visible; entire underparts from chin to thighs and lower abdomen very heavily spotted with fuscous-black, the general appearance of the underparts being fuscous-black spotted with pale tawny rather than vice versa as in the pale phase; under tail coverts as in pale phase, but narrowly barred with fuscous-black; under wing coverts fuscous-black spotted with tawny-buff.

Natal down.—White.

Adult male.—Wing 362–406 (383.6); tail 185–214 (204.6); culmen

from cere 20.5–24.9 (22.1); tarsus 63.1–72.6 (68.2); middle toe without claw 36.7–44.4 (39.5 mm.).[51]

Adult female.—Wing 375–427 (404.6); tail 193.6–234 (214.6); culmen from cere 20.5–25.7 (23.7); tarsus 61.5–76.4 (70.6); middle toe without claw 38.3–46.5 (42.1 mm.).[52]

Range.—Breeds from Alaska (Fort Yukon, Mount Sischu, and to lat., 66°43′ N. on the Alaska-Yukon border), northwestern Mackenzie (Fort Anderson), Saskatchewan, and Manitoba (Oak Lake, Winnipeg, Carberry) east to Manitoba, western and central Minnesota, and Iowa (Grinnell, Laporte City, Sigourney); uncommonly to Illinois (Philo, Fox Prairie); rarely to Missouri (Pierce City), Oklahoma, Texas (Henrietta, San Angelo, Cotulla), and Chihuahua, Mexico (San Diego); south to Durango, Mexico (Río Sestin), and probably Sonora (Opodepe); northern portion of Baja California; west to Baja California; California, Oregon, Washington, British Columbia (chiefly the drier parts of the interior; in the southwestern part only at high elevations; in the southern interior as low as 2,000 feet; north at least to Telegraph Creek); and to Alaska (Onslow Island, and Juneau).

Winters in Argentina (Provinces of Catamarca, Tucumán, Córdoba, Entre Ríos, Buenos Aires, etc.); migrates across Central America, Colombia, Ecuador (one record), and Brazil; erroneously said to winter in Chile. Reported once in winter in Nueva León, Mexico.

Casual in eastern North America; Ontario (Moose Factory, Ottawa, Toronto); Quebec (Montreal region); Michigan (Cheboygan County, Hessel, Whitefish Point); Maine (Glenburn, Gouldsboro, Calais); Vermont (Hartland); Massachusetts (Hamilton, Wayland, Salem, Essex); New York (Onondaga County, Brockport, Cornwall, Lake George); Pennsylvania (Jacobs Creek); Kentucky; West Virginia (White Sulphur Springs); and Florida (Key West, Palm Beach, Miami Beach).

Type locality.—Near the Columbia River.

(?) *Buteo cinereus* Vieillot, Ois. Amér. Sept., i, 1807, 33.

Buteo vulgaris (not of Leach, 1816) Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 47, 69, pl. 27 (fig.; descr.; habits; etc.).—Jardine, ed. Wilson's Amer. Orn., ii, 1838, 56.—Audubon, Synopsis, 1839, 5 (Rocky Mountains; Columbia River; fur countries); Birds Amer., 8vo ed., i, 1840, 30, pl. 6.—Townsend, Narrative, 1839, 331 (Oregon).—Vigors, Zool. Voy. *Blossom*, 1839, 15.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 105.—Gambel, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 45 (California).—Hoy, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 306 (Wisconsin).

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[51] Twenty specimens from Oregon and California to Manitoba, North Dakota, Nebraska, and Texas.

[52] Thirty-eight specimens from Alaska, Montana, Manitoba, and Illinois to California, Nevada, Arizona, New Mexico, and Mexico (Chihuahua).

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Buteo swainsoni swainsoni Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 263.—Goode, U. S. Nat. Mus. Bull. 20, 1883, 309.

Buteo (*Craxirex*) *swainsoni* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 100 (monogr.).

Craxirex swainsoni Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 92 (diagn.).

Buteo montana Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 112.

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Buteo swainsoni var. *insignatus* Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 272 (Koyukuk, on Yukon River, Alaska).—Brewer, Proc. Boston Soc. Nat. Hist., xviii, 1875, 444 (Salem, Mass.); xix, 1878, 306 (Wayland, Mass., 1876).

Buteola insignata Bonaparte, Compt. Rend., xlii, 1856, 956.

Buteo oxypterus Cassin Proc. Acad. Nat. Sci. Philadelphia, 1855, 282 (near Fort Webster, N. Mex.; coll. Acad. Nat. Sci. Philadelphia); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 30; ed. 1860 (Birds North Amer.), atlas, pl. 15, fig. 2.—Baird, Rep. Pacific R. R. Surv., x, No. 2, 1859, 11, pl. 15 (Fort Fillmore, N. Mex.); Cat. North Amer. Birds, 1859, No. 28; *in* Cooper, Orn. California, Land Birds, 1870, 480 (Fort Fillmore; crit.)—Bryant, Proc. Boston Soc. Nat. Hist., viii, 1861, 117 (descr.; crit.).—Gray, Hand-

list, i, 1869, 8, No. 58.—Coues, Key North Amer. Birds, 1872, p. 218.—Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 75 [=77] (crit.; = *B. swainsoni* young).

Buteo swainsoni oxypterus Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 266.—Goode, U. S. Nat. Mus. Bull. 20, 1883, 309.

Poecilopternis oxypterus Henry, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 105.

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Buteo gutturalis Maximilian, Journ. für Orn., 1858, 17 (upper Missouri River;= normally colored adult).

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? *Buteo* (*Asturina*?) *aethiops* Philippi, Arch. für Naturg., lxv, Band 1, 1899, 167, 168 (central provinces of Chile); Anal. Mus. Nac. Chile, entr. xv, sect. 1, Zool., 1902, 16, pl. 8 (fig.).

Urubitinga anthracina anthracina Willett, Pacific Coast Avif., No. 21, 1933, 188 (sw. California; hypothetical; eggs; probably referable to *Buteo swainsoni*; crit.).

Parabuteo unicinctus harrisi Peyton, Condor, xxxiv, 1932 (Red Creek Canyon, Ventura County, Calif.); xlii, 1940, 128 (1932 spec. ident. corrected).

BUTEO PLATYPTERUS PLATYPTERUS (Vieillot)

Northern Broad-winged Hawk

Adult.—Normal phase (sexes alike in color): A narrow frontal line buffy white to buffy; top of head, nape, scapulars, interscapulars, back, rump, and upper wing coverts varying from benzo brown and hair brown to fuscous and fuscous-black, the feathers of the occiput and nape with fairly conspicuous white bases and edged with whitish to mikado brown; the upper wing coverts gradually paling toward the edges, the feathers of the back more uniformly dusky, causing, in most specimens, a blackish appearance; upper tail coverts hair brown to vandyke brown, tipped with white and crossed by a concealed bar

of the same; secondaries smoky hair brown becoming white on the inner edge of the inner webs, barred and broadly but indistinctly tipped with fuscous, the terminal band narrowly tipped with pale hair brown; primaries fuscous-black becoming white on the inner webs, the outer three feathers with the inner webs emarginated, the outer webs of the primaries not or only indistinctly barred with black, the inner webs barred with five or six narrow blackish bends, these bars incomplete on the four or five outermost feathers; rectrices dull black, with an indistinct terminal band of dull hair brown, this fading terminally into whitish; across the middle of the tail a broad band of dull light umber nearly dull white, about 15–20 mm. broad; about as far anterior to the main band as this is from the tip is another much narrower and less distinct band of the same color crossing just beyond the ends of the coverts, or concealed by them; lores whitish to dirty buff; cheeks benzo brown to fuscous, the feathers edged with pale tawny or buffy mikado brown, giving a streaked appearance; a broad but inconspicuous "mustache" running from the rictus downward across the cheek, fuscous to fuscous-black; chin and throat white sometimes tinged with buff, immaculate or sparsely penciled with dark shaft streaks of buffy hair brown or dull Saccardo's umber to fuscous; rest of underparts whitish, the breast feathers heavily streaked and broadly barred (the bars being lateral dilations from the median streaks) with from wood brown to snuff brown and bister, sometimes so extensively marked with this darker color as to appear almost uniform snuff brown or bister with a few whitish spots here and there; upper abdomen and sides and flanks like the breast, but with the shaft stripes reduced so that the feathers are more clearly barred, and with the white interspaces larger, the brown marks becoming smaller posteriorly; lower abdomen immaculate or only very slightly and lightly marked with brownish; under tail coverts usually pure white, occasionally sparsely and faintly marked with pale wood brown; thighs like the sides, but with the brown marks paler and narrower; under wing coverts whitish marked very sparsely with wood brown; iris light reddish hazel; cere greenish yellow to chrome yellow; feet light yellow; bill and claws bluish-black.

Females average slightly darker generally than males, but the extremes are the same for the two sexes.

The adults show two general types of coloration, which, if not for the completeness of all the intergradations shown by a good series, would merit description as two color phases—a grayish brown-backed form with little rufous or cinnamomeous on the feather margins, and with the ventral markings dull brownish, and a darker form with the feathers of the sides of neck and upper back edged with cinnamon

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or mikado brown, and with the bars below with a rufescent cast and sometimes confluent on the breast to the near exclusion of the white.

Adult.—Melanistic phase (sexes alike): Plumage of head, neck, and body, entirely continuous dark sooty brown, without the faintest indication of markings, even on the lower tail coverts or lining of the wing; back darker, with a chalky cast in certain lights. Wing similar to the general plumage, but somewhat lighter brown, on account of paler but not well-defined borders to the feathers; secondaries lighter brown than the coverts, without trace of markings except near the end, where crossed by a broad dusky subterminal band and very narrow paler terminal margin; primaries uniform dusky brown on outer webs, growing gradually blackish terminally; inner webs of the three outer quills chiefly white anterior to their emargination (the portion near the shaft brownish), the white crossed by several very distinct but irregular bands of blackish; inner webs of remaining primaries, and also of secondaries, brown, with a greater or less number (according to the length of the feather) of dusky bands, the webs mottled with whitish along the edge. Upper tail coverts with concealed pale grayish broad bars (approaching white in places), there being about two bars on each feather. Tail black, narrowly tipped with grayish brown, crossed at about 36 mm. from the end by a broad band (about 25 mm. wide) of brownish gray, becoming white on edges of inner webs, and approaching white on the anterior portion of the band on the middle rectrices; another much narrower and much less distinct gull grayish band crosses the tail about 100 mm. from the tip, the portion on inner webs more or less whitish on some of the feathers, but on none extending clearly to the edge of the web; extreme base of the tail light sooty grayish. Feathers of the head, neck, and body, above and below, sooty gray beneath the surface, the extreme base even scarcely approaching white; the feathers of the entire occiput, however, abruptly snow-white for about the basal half. Forehead entirely sooty blackish, but anterior portion of the lores grayish white, finely streaked with black. "Iris red."

The melanistic phase of this species is so rare that only a very few specimens have hitherto been recorded. They resemble very closely in size and general appearance the melanistic phase of *Buteo brachyurus* Vieillot, from which they may be distinguished by the middle toe which without the claw is shorter than the bare part of the tarsus in front in *B. platypterus* and longer in *B. brachyurus*.

Immature.—Normal phase (sexes alike): Similar to adults but with the dark marks on the breast longitudinal streaks, not bars, the broad median shaft stripes not or only slightly incised laterally by the white margins of the feathers. This is a rather indefinite plumage and

may really be nothing but the transition from the juvenal to the adult stage, and not a true plumage in itself.

Juvenal.—Normal phase (sexes alike): Upperparts: Head, nape, back, upper wing and tail coverts similar to adult but with very much whitish showing, especially on the head and nape where the feathers are laterally and basally white, and on the inner scapulars and upper wing coverts where the white spots show through; many of the interscapulars and upper wing coverts edged narrowly with cinnamon; remiges as in adult; rectrices very different: buffy brown to olive brown tipped with whitish, subterminally broadly banded with fuscous, and crossed by five or six narrow, indistinct bars of fuscous; sides of head as in adults, but paler, the feather edgings more whitish; entire underparts whitish, the chin and throat with a single median wood brown streak, the sides of neck and the entire breast spotted with elongated tear-shaped marks of wood brown to Saccardo's umber, these marks becoming smaller and rounder on the sides, flanks, upper abdomen, and thighs; lower abdomen and under tail coverts immaculate white; under wing coverts whitish, sometimes slightly washed with pale buff and sparsely spotted with Saccardo's umber; iris very pale brown; cere and feet light yellow.

Juvenal.—Dark phase (sexes alike): Similar to the normal phase, but with more rufous especially on the breast (*ex* Bailey, Raptorial Birds Iowa, 1918, 130).

Natal down.—White.

Adult male.—Wing 244–277 (262.8); tail 148–173.5 (159); culmen from cere 17–20 (18.2); tarsus 57.5–65.5 (62.3); middle toe without claw 30.8–35.6 (32.5 mm.).[53]

Adult female.—Wing 265–296 (282.8); tail 155–185.4 (171.2); culmen from cere 17.1–20.5 (19.3); tarsus 59–66.4 (62.8) middle toe without claw 31.7–36.2 (33.7 mm.).[53]

Range.—Breeds from central Alberta (Belvedere, Edmonton, Camrose, near Ste. Anne, Athabaska Landing), central Saskatchewan (Hudson Bay Junction), central Manitoba (Gypsumville); northern Ontario (Favourable Lake and Fraserdale, Parry Sound, Muskoka), southern Quebec (Quebec, Mont Luis River), New Brunswick (St. John, Scotch Lake), and Cape Breton Island, south through New England, along the eastern seaboard to as far south as Florida (Micanopy, Lake Harney, Palm Key, St. Marks, Manatee, Pensacola); Alabama, Louisiana, and eastern Texas (Houston, Austin, Nueces River), and in the west through North Dakota (Fargo), Minnesota, northwestern Iowa (Sioux City); eastern Nebraska (Omaha), western Missouri (Kansas City), eastern Kansas (Topeka), Oklahoma (Vinita, Copan), and central and southern Texas (Austin, Nueces River).

[53] Seventeen males, 17 females, from all parts of the range.

Winters from Florida (near St. Marks, Captiva Island, Sanibel Island, Monroe and Volusia Counties, the Florida Keys); and southern Mexico (Santa Efigenia) throughout Central America to Colombia; Venezuela; Ecuador; western Brazil (Matto Grosso, Upper Amazonas); and to northern and eastern Peru (Chamicuros, Huambo, Maraynioc). Occasional in winter north to New Jersey and southern Illinois, but most "winter" records from the United States are of belated migrants or sick birds, not normal wintering individuals; possibly occasionally migrates to Cuba.

Casual in Colorado (Seven Falls; Manitou).

Type locality.—Pennsylvania=Schuylkill River, *ex* Wilson.

(?) *Falco variegatus* Gmelin, Syst. Nat., i, pt. 1, 1788, 267 ("America boreali"; based on *Speckled Buzzard* Latham, Synop. Birds, i, 1781, 97).—Shaw, Gen. Zool., vii, pt. i, 1809, 112.

(?) *Falco lineatus* (not of Gmelin?) Shaw, Gen. Zool., vii, pt. 1, 1809, 113 (2 white bands on tail, so it can hardly be *F. lineatus* Gmelin).

Falco pennsylvanicus Wilson, Amer. Orn., vi, 1812, 92, pl. 54, fig. 1 (near Schuylkill River, e. Pennsylvania; type now in coll. Acad. Nat. Sci. Philadelphia; not *F. pennsylvanicus* of pl. 46, fig. 1, which=*F. velox* Wilson); see Stone, Proc. Acad. Nat. Sci. Philadelphia, 1899, 11, and Auk, xvi, 1899, 169; also Faxon, Bull. Mus. Comp. Zool., lix, 1915, 127).—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 348; Obs. Wils. Amer. Orn., 1826, [9], [239]; Contr. Maclurian Lyc., i, 1827, 10.—Audubon, Orn. Biogr., Phila. ed., i, 1831, 461, pl. 91, v, 1839, 377.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 105.—Temminck, Planches Col., 1836, pl. 67, and text.—Faxon, Bull. Mus. Comp. Zool., lix, 1915, 127 (on location of type).

Astur pennsylvanicus Cuvier, Règne Anim., ed. 2, i, 1829, 332.

Buteo pennsylvanicus Bonaparte, *in* Cuvier, Régne Anim., Ois., 1830, 35; Geogr. and Comp. List, 1838, 3.—Audubon, Synopsis, 1839, 7; Birds Amer., 8vo ed., i, 1840, 43, pl. 10.—Giraud, Birds Long Island, 1844, 5 (Long Island, New York).—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 107.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 35 (Quebec; Poland, Ohio; Caracas, Venezuela); Hand-list, i, 1869, 7, No. 54, part.—Lawrence, Ann. Lyc. Nat. Hist., New York, vi, 1853, 8 (descr. adult male and young); vii, 1861, 288 (Isthmus of Panama); viii, 1866, 280 (vicinity of New York City); ix, 1868, 133 (San José and Angostura, Costa Rica); U. S. Nat. Mus. Bull. 4, 1875, 41 (Santa Efigenia, Oaxaca, Dec.).—Barry, Proc. Boston Soc. Nat. Hist., 1854, 1, in text (Wisconsin).—Brewer, North Amer. Ool., i, 1857, 31, pl. 1, figs. 8–10.—Sclater, Proc. Zool. Soc. London, 1857, 261 (Río Javari, e. Peru); 1858, 451 (Gualaquiza, Ecuador; food); 1860, 71 (Pallatanga, e. Ecuador).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 29.—Baird, Cat. North Amer. Birds, 1859, No. 27.—Sclater and Salvin, Ibis, 1859, 217 (Guatemala); 1864, 369 (Panama); Nom. Av. Neotr., 1873, 119, part; Ibis, 1873, 302 (Chamicuros and Río Javari, e. Peru); 1879, 540 (Concordia, Evigado, and Santa Elena, Colombia).—Verrill, Proc. Essex Inst., iii. 1862, 141 (Oxford County, Maine, breeding).—Blakiston, Ibis, 1863, 45 (s. end Hudson Bay).—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 20 (monogr.); No. 36, livr. 10, 1873, 109 (crit.).—Dresser, Ibis, 1865, 325 (e. Texas to Nueces River, breeding).—Frantzius, Journ.

für Orn., 1869, 368 (Costa Rica).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 259; Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois).—Pelzeln, Orn. Bras., Abth. 4, 1870, 396.—Salvin, Proc. Zool. Soc. London, 1870, 215 (Boquete de Chitra, Calovebora, Calobre, and Volcán de Chiriquí, Panama).—Coues, Key North Amer. Birds, 1872, 217; Check List North Amer. Birds, 1873, No. 355; Birds Northwest, 1874, 360; Check List North Amer. Birds, ed. 2, 1882, No. 524; Key North Amer. Birds, ed. 2, 1884, 548.—Snow, Birds Kansas, 1873, 6 (Topeka, Kans.).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; common in summer).—Gundlach, Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 99 (Cuba).—Boies, Cat. Birds Southern Michigan, 1875, No. 138 (s. Michigan; trans.).—Nelson, Bull. Essex Inst., viii, 1876, 119 (ne. Illinois; common in May and September; a few breeding).—Gibbs, U. S. Geol. and Geogr. Surv. Bull. 5, No. 3, 1879, 491 (Michigan; breeds).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; not rare).—Roberts and Benner, Bull. Nuttall Orn. Club, v, 1880, 17 (Herman, Minn.).—Salvin and Godman, Ibis, 1880, 177 (Sierra Nevada de Santa Marta, Colombia, 2,000 feet; Minca, Colombia).—Nehrling, Bull. Nuttall Orn. Club, vii, 1882, 174 (se. Texas, breeding).—Taczanowski, Proc. Zool. Soc. London, 1882, 47 (Huambo, Peru); Orn. Pérou, i, 1884, 113.—Wheaton, Rep. Birds Ohio, 1882, 429, 579 (Ohio, syn.; descr.).—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, w. Ecuador, Oct.-Dec.; food); 1885, 110 (San Rafael, Ecuador).—Banks, Auk, i, 1884, 95 (St. John, New Brunswick; descr. nest and eggs).—Gurney, List Diurn. Birds Prey, 1884, 67 (crit.); Cat. Birds Prey, 1894, 24.—Turner, Proc. U. S. Nat. Mus., viii, 1885, 244 (Moose Factory, Ontario).—Stahl, Ornis, iii, 1887, 450 (Porto Rico).—Roddy, Auk, v, 1888, 247 (feeding habits).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 42 (Maraynioc, c. Peru, Nov.).

Buteo (*Craxirex*) *pennsylvanicus* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 116 (monogr.).

Buteo pensylvanicus Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Jalapa, Veracruz).

Poecilopternis pennsylvanicus Goode, U. S. Nat. Mus. Bull. 20, 1883, 337.—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 266.

Sparvius platypterus Vieillot, Tabl. Enc. Méth. Orn., iii, 1823, 1273 (based on *Broad-winged Hawk* Wilson, Amer. Orn., Schuylkill River, near Philadelphia, Pa.).

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Poecilopternis wilsoni Kaup, Isis, 1847, 330.

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Falco (*Astur*) *speciosus* Voight, Das Thierreich, i, 1831, 389 (new name for *Falco pennsylvanicus* Wilson, Amer. Orn., vi, 1812, 92, pl. 54, fig. 1).

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Washington, xii, 1898, 132 (Santa Marta, Colombia).—Hartert, Nov. Zool., v, 1898, 502 (Paramba, nw. Ecuador, 3,500 ft.).—Lantz, Trans. Kansas Acad. Sci., 1896–97 (1899), 255 (Kansas; rare summer res. in e. Kansas).—Sharpe, Hand-list, i, 1899, 257.—Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 130 (Bonda, etc., Santa Marta, Colombia, Nov.–Mar.); Auk, xvii, 1900, 364 (Bonda, Valparaiso, and Minca, Santa Marta, Colombia, Nov.–Mar.).—Beyer, Proc. Louisiana Soc. Nat. Hist. for 1897–99 (1900), 99 (Louisiana, breeding).—Nash, Check List Birds Ontario, 1900, 29 (Ontario; common summer res.).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 69 (Mexican and Central American locs.; Colombia; Ecuador; Venezuela; upper Amazon).—Fleming, Auk, xviii, 1901, 37 (Parry Sound and Musoke, n. Ontario, breeding).—Goodfellow, Ibis, 1902, 221 (Archidona and Guacamoyo, e. Ecuador; habits).—Ihering and Ihering, Av. Brazil, 1907, 90 (Rio Javari and upper Amazon).—Bailey, Proc. Iowa Acad. Sci., xix, 1912, 192 (melanism), 195 (remarkable flight).—Pindar, Wils. Bull., xxxvii, 1925, 85 (status, Fulton County, Ky).—Groebbels, Der Vögel, i, 1932, 274 (food habits), 379, in text (feeding the young), 621 (body weight); ii, 1937, 23, in text (right ovary), 171 (data on breeding biology), 204, in text (lines nest with leaves), 236, in text (egg laying).

Buteo latissinus (typ. error) Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Jiménez, Costa Rica).

(?) *Buteo sylvanicus* Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; Veracruz and Tehuantepec).

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Asturina plagiata Anderson, Proc. Davenport Acad. Sci., xi, 1907, 251 (Van Buren County, Iowa).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 132.

Buteo platypterus iowensis Bailey, Auk, xxxiv, 1917, 73 (Eagle Lake, Hancock County, Iowa; coll. Coe College).—Oberholser, Auk, xxxiv, 1917, 207; xxxv, 1918, 478 (crit.).

BUTEO PLATYPTERUS CUBANENSIS Burns

Cuban Broad-Winged Hawk

Adult (sexes alike).—Similar to the immature plumage of the nominate race, that is, the dark marks on the breast are streaks, not true bars.

Juvenal (sexes alike).—Indistinguishable from those of the nominate form.

Adult male.—Wing 250–256; tail 150–156.6; culmen from cere 19.5–19.7; tarsus 65; middle toe without claw 33.5–37.5 mm. (2 specimens).

Adult female.—Wing 254–266 (261); tail 160.1–164 (161.3); culmen from cere 19.5–21.3 (20.2); tarsus 59.5–61.5 (60.7); middle toe without claw 30.2–32.5 (31.5 mm.) (3 specimens).

Range.—Resident in Cuba and the Isle of Pines; occasional (?) in Hispaniola, whence the species has been recorded (but no adult specimens are available for study from Hispaniola). The identifica-

tion of Haitian records with the present subspecies is therefore wholly on geographic grounds.

Type locality.—Cuba.

(?) *Astur latissimus* Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

Buteo lattissimus Lembeye, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 333 (Cuba).

Buteo latissimus Lembaye, Aves Isla Cuba, 1850, 19, pl. 3, fig. 2.—Gundlach, Orn. Cubana, 1895, 21.—Menegaux, Rev. Franç. Orn., No. 2, 1909, 21 (Cuban localities).

Buteo pennsylvanicus Cabanis, Journ. für Orn., ii, 1854, lxxxii, (Cuba).—Gundlach, Journ. für Orn., ix, 1861, 403 (Cuba; crit.); Repert. Físico-nat. Cuba, i, 1865–66, 223; Journ. für Orn., xix, 1871, 366 (Cuba; habits); Contr. Orn. Cubana, 1876, 41.—Cory, List Birds West Indies, rev. ed., 1886, 22, part (Cuba).

Buteo (Poecilopternis) pennsylvanicus Gundlach, Journ. für Orn., ix, 1861, 322 (Cuba).

Buteo platypterus Swann, Synop. Accip., ed. 2, 1922, 82, part (Cuba).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 46 (Cuba).

Buteo platypterus platypterus Swann, Monogr. Birds Prey, i, 1928, 405, part (Cuba).—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 133 (habits, distr., etc.; Hispaniola).—American Ornithologists' Union, Checklist, ed. 4, 1931, 67, part (Cuba, Haiti).

Buteo platypterus cubanensis Burns, Wils. Bull., xxiii, 1911, 148 (Cuba; orig. descr.), 195 (Tres Hermanos Mountains).—Todd, Ann. Carnegie Mus., x, 1916, 193.—Peters, Check-list Birds of World, i, 1931, 236, part.—Bond, Birds West Indies, 1936, 66, footnote (crit.); Notulae Naturae, No. 13, 1939, 1 (crit.; Cuba); Check List Birds West Indies, 1940, 23 (West Indies; Cuba, fairly common; Isle of Pines (?); Hispaniola (subsp. indet.) 1 rec. of immature bird); ed. 2, 1945, 23.—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 35 (Cuba; rare).

BUTEO PLATYPTERUS BRUNNESCENS Danforth and Smyth

Puerto Rican Broad-Winged Hawk

Adult female.—Similar to that of *Buteo platypterus cubanensis,* but blacker above, the dark fuscous or fuscous-black of the latter replaced by black, the gray bars on the tail duskier, more washed with dark smoke gray; feathers of the chin, throat, sides of head and neck with heavy black shaft streaks; rest of underparts tawny-olive heavily barred with mummy brown, much more heavily and thickly marked than in the Cuban race. This is the darkest of all the known races of the species; wing 264.5; tail 159; culmen from cere 20.8; tarsus 56.3; middle toe without claw 29.5 mm.[54]

Immature male.—Similar to that of the nominate race, but with the ventral tear-shaped streaks darker, fuscous to clove brown; wing 257; tail 151; culmen from cere 18.5; tarsus 59.5; middle toe without claw 29.5 mm. (1 specimen).

[54] Only the type known. (Examined.)

Natal down.—Not known.

Range.—Known only from the type locality, El Yunque Mountain, Puerto Rico, and, by sight record, from Utuado, Puerto Rico.

Falco antillarum Moritz, *in* Wiegmann, Arch. für Naturg., 1836, 390 (listed, Puerto Rico).

Nisus pennsylvanicus Bello, Zool. Garten, 1871, 349 (listed, Puerto Rico).

Buteo pennsylvanicus Gundlach, Journ. für Orn., xxii, 1874, 310 (Puerto Rico); xxvi, 1878, 158, 163 (Puerto Rico).—Anal. Soc. Esp. Hist. Nat., vii, 1878, 160 (common (!), Puerto Rico).—? Stahl, Faun. Puerto Rico, 1883, 58 (migrant, Puerto Rico); Ornis, iii, 1887, 450 (uncommon, in the mountains).—Cory, List Birds West Indies, rev. ed., 1886, 22, part (Puerto Rico).

Buteo latissimus Cory, Auk, iv, 1887, 40 (Puerto Rico); Cat. West Ind. Birds, 1892, 99 (Puerto Rico).

Buteo platypterus platypterus Burns, Wils. Bull., xxiii, 1911, 170, in text, part (Puerto Rico)—Wetmore, U. S. Dept. Agr. Dept. Bull. 326, 1916, 32 (Utuado, Puerto Rico); New York Acad. Sci., Sci. Surv. Puerto Rico and Virgin Islands, ix, pt. 3, 1927, 322 (genl.; Puerto Rico).—Swann, Monogr. Birds Prey, i, 1928, 405, part (Puerto Rico).—American Ornithologists' Union, Checklist, ed. 4, 1931, 67, part (Puerto Rico).

Buteo platypterus Swann, Synop. Accip., ed. 2, 1922, 82, part (Puerto Rico).—Peters, Auk, xlvii, 1930, 563 (El Yunque, Puerto Rico).

Buteo platypterus cubanensis Peters, Check-list Birds of World, i, 1931, 236, part.

Buteo platypterus brunnescens Danforth and Smyth, Journ. Agr. Univ. Puerto Rico, xix, 1935, 485 (El Yunque Mountain, Puerto Rico).—Danforth, Auk, liii, 1936, 241, in text (Puerto Rico).—Bond, Not. Nat., No. 13, 1939, 1, in text (crit.; Puerto Rico); Check List Birds West Indies, 1940, 23 (Puerto Rico; known only from the type); ed. 2, 1945, 23; Proc. Acad. Nat. Sci. Philadelphia, xciv, 1942, 91 (valid race).

BUTEO PLATYPTERUS INSULICOLA Riley

ANTIGUA BROAD-WINGED HAWK

Adult male.—Lighter and smaller than any of the other subspecies. Frontal apex, lores, and a narrow line above and below the eye whitish, with some stiff black bristles; top of head and auriculars grayish brown, with darker shaft streaks; rictal streak darker; occiput white, with the feathers tipped rather broadly with sooty brown; back and rump blackish brown, the feathers of the upper back barred at their bases with white, and slightly edged with wood brown; upper tail coverts black barred with white; tail black, tipped rather narrowly with dark drab and crossed by two rather wide white bars and an indication of a third that does not reach the shaft on individual feathers; scapulars color of the back, strongly barred with white for about two-thirds of their length, basally; primaries dull black on the outer web and tip, white on the inner web as far as the emargination on the outer feathers, but not reaching the shaft except at the base, the black increasing in area from the outer feathers inwardly and turning to dark brown at the base and tip, leaving a large subterminal

black band, a small black spot appearing on the inner web on the edge of the white of the second outer feather, increasing in number and intensity inward on the other primaries, where they become interrupted bars not reaching entirely across the white to the inner web, however; secondaries and tertials grayish brown with a dull black subterminal band, the inner webs of the outer and the inner webs and bases of the inner feathers white, barred with dark brown; wing coverts grayish brown; primary coverts dull blackish brown, irregularly barred with white on basal two-thirds of inner webs, the white extending to outer webs at extreme base; lining of wing cream-buff; sparsely spotted with small cinnamon spots; axillaries creamy white, with rather narrow bars of mars brown along the shaft; chin and throat white, with narrow dark brownish streakings; rest of underparts white, barred, spotted, or streaked comparatively lightly with mars brown, the streaking or barring heavier on the chest, decreasing on the abdomen, and ceasing entirely on the under tail coverts; thighs narrowly barred with mars brown.

Adult female.—None seen; probably like the male.

Immature female.—(No male seen, but probably similar.) Like adult, with very much white on the upperparts as in juvenal; tail as in adult; chin and throat as in adult; rest of the underparts white with only a few wood brown stripes on the breast and upper abdomen; lower abdomen, flanks, thighs, and under tail coverts immaculate.

Juvenal.—(No males seen, but probably similar to the females which are as follows): Superciliary region and sides of face white, with a few fine brown streakings, these markings slightly heavier on the postocular streak, and more so on the rictal streak; lores, frons and top of head white, broadly streaked with blackish brown, the region in question having the appearance of being equally streaked with brown and white, the streaks much finer on lores and frons; cervix and sides of neck white, broadly streaked with sepia brown; mantle and rump sepia, the feathers narrowly edged with cinnamon-rufous, this edging more pronounced on the rump; upper tail coverts white, barred with black; upper surface of tail white at the base, this color continuing a short distance down the shaft of the middle feathers, and down the inner web of the outer feathers almost to the tip, remainder of tail hair brown, narrowly edged with white at the tip, with a subterminal band of clove brown, and four or five irregular bars of lighter brown; lesser wing coverts sepia with narrow edgings of cinamon-rufous; middle and greater wing coverts sepia, irregularly barred and edged with white and little cinnamon-rufous, alula sepia, white on the inner webs of the feathers, with sepia barrings and some cinnamon-rufous edgings; primary coverts white at base, on the inner webs, and edges at the tip; sepia on the outer web and inner web on terminal portion with just

a trace of cinnamon-rufous, the inner web obsoletely barred with brown; primaries dark brown, darker on the outer feathers, and becoming lighter on the others toward the base, until the ground color of the whole feather gradually becomes uniform dark hair brown on the outer web, all (except the first) narrowly edged at the tip and rather broadly at the base on the outer web with white, the white on the outer web stippled with brown, the inner webs of all the feathers (as far as the emargination on the outer three, and farther on the rest) white, barred with black; these bars extend across the brown of the outer, but never entirely across the white of the inner, web; secondaries dark hair brown; white on the inner web, edged with white at tip and barred with black; tertials white, barred with sepia; scapulars white, barred and tipped with sepia; lining of wing pinkish buff, with a few faint shaft streaks at carpal joint; below creamy white, the jugulum crossed by a scattering band of sparse tear-shaped spots of sepia; the rest of the underparts almost immaculate, except for a few small scattering spots on the flanks, and a few hair lines of sepia on the breast; thighs creamy buff, rather sparsely marked with V-shaped sepia bars.

Natal down.—Undescribed.

Adult male.—Wing 227; tail 145.9; culmen from cere 18.5; tarsus 56; middle toe without claw 29.2 mm.[55]

Range.—Resident on the island of Antigua.

Type locality.—Antigua.

Buteo pennsylvanicus? (not *Falco pennsylvanicus* Wilson) Lawrence, Proc. U. S. Nat. Mus., i, 1878, 236 (Antigua, res.).

Buteo pennsylvanicus Lawrence, Proc. U. S. Nat. Mus., i, 1879, 487, part (Antigua).—Cory, List Birds West Indies, 1885, and rev. ed., 1886, 22, part (Lesser Antilles, part).

Bueto latissimus (not *Falco latissimus* Wilson) Sharpe, Cat. Birds Brit. Mus., i, 1874, 198, part.—Cory, Auk, iv, 1887, 40, part (Lesser Antilles, part); viii, 1891, 47 (Antigua); Birds West Indies, 1889, 198, part (Antigua); Cat. West Indian Birds, 1892, 99, part (Antigua).—Ridgway, Man. North Amer. Birds, 1887, 236; ed. 2, 1896, 237, part.—Davie, Nests and Eggs North Amer. Birds, ed. 4, 1889, 178, part.—Warren, Birds Pennsylvania, 1890, 130, part.—Fisher, Hawks and Owls United States, 1893, 79, part.—American Ornithologists' Union, Check-list, ed. 2, 1895, 133, part.

Buteo platypterus (not *Sparvius platypterus* Vieillot) Riley, Smiths. Misc. Coll., xlvii, 1904, 282 (Antigua; crit.).

Buteo platypterus insulicola Riley, Auk, xxv, 1908, 273 (Antigua, Lesser Antilles; type in coll. U. S. Nat. Mus.).—Burns, Wils. Bull., xxiii, 1911, 196 (Antigua).—Swann, Synopt. List Accip., pt. 2, 1919, 50; Synop. Accip., ed. 2, 1922, 82; Mongr. Birds Prey, i, 1928, 405 (monogr.).—Peters, Check-list Birds of World, i, 1931, 237.—Danforth, Auk, li, 1934, 357 (Antigua).—Bond, Birds West Indies, 1936, 66, 67, in text (Antigua; descr.), 414; Check List Birds West Indies, 1940, 23 (Antigua); ed. 2, 1945, 23.

[55] Only one specimen, the type, seen. No adult females seen.

BUTEO PLATYPTERUS RIVIEREI Verrill

DOMINICAN BROAD-WINGED HAWK

Adult (sexes alike).—Similar to that of *B. p. antillarum*, but slightly darker generally; the crown fuscous-black instead of fuscous, the breast markings tawny without the ochraceous tinge found in *antillarum*.

Juvenal (sexes alike).—None seen; apparently similar to that of *B. p. antillarum*.

Natal down.—Undescribed.

Adult male.—Wing 245; tail 149; culmen from cere 19.3; tarsus 55.5; middle toe without claw 29.5 mm. (1 specimen).

Adult female.—Wing 250; tail 145; culmen from cere 18; tarsus 54.5; middle toe witout claw 29 mm. (1 specimen).

Range.—Resident on the islands of Dominica, Martinique, and St. Lucia.

Type locality.—Dominica.

Buteo latissimus (not *Falco latissimus* Wilson) SHARPE, Cat. Birds Brit. Mus., i, 1874, 193, part.—CORY, Auk, iv, 1887, 40 part (St. Lucia), 96 (Martinique); Birds West Indies, 1889, 198, part (Lesser Antilles, part, St. Lucia); Cat. West Indian Birds, 1892, 99, part (Dominica, Martinique, St. Lucia).—RIDGWAY, Man. North Amer. Birds, 1887, 236; ed. 2, 1896, 237 part.—VERRILL, Trans. Connecticut Acad. Arts and Sci., viii, 1892, 325 (Dominica; habits).—FISHER, Hawks and Owls United States, 1893, 79, part.—AMERICAN ORNITHOLOGISTS' UNION, Check-list, ed. 2, 1895, 133, part.—CLARK, West Indian Bull., xi, 3, 1911, 182 (St. Lucia).

Buteo pennsylvanicus (not *Falco pennsylvanicus* Wilson) LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 65 (Dominica, res.).—ALLEN, Bull. Nuttall Orn. Club, v, 1880, 169 (Santa Lucia).—CORY, List Birds West Indies, 1885, and rev. ed., 1886, 22, part (Antilles, part).—SCLATER, Proc. Zool. Soc. London, 1889, 326 (Dominica), 395 (Santa Lucia).

Buteo platypterus antillarum RILEY, Auk, xxv, 1908, 271 part (syn.; crit.; range; Martinique; St. Lucia).—BURNS, Wils. Bull. xxiii, 1911, 196, part (Martinique; St. Lucia).—SWANN, Synop. Accip., ed. 2, 1922, 82, part (Dominica, Saint Lucia; footnote, crit.); Monogr. Birds Prey, i, 1928, 405 part (St. Lucia; Dominica).

Buteo (latissimus) rivierei VERRILL, Descr. Three New species of birds from Dominica, B. W. I., no date (=Oct. 24, 1905), not paged (Dominica).

Buteo platypterus rivierei BURNS, Wils. Bull., xxiii, 1911, 196 (Dominica).

Buteo platypterus rivieri RILEY, Auk, xxv, 1908, 272 (synonymy; range; crit.).—SWANN, Synopt. List Accip., pt. 2, 1919, 50; Synop. Accip., ed. 2, 1922, 82, part, footnote (crit.).—PETERS, Check-list Birds of World, i, 1931, 237.—BOND, Birds West Indies, 1936, 67, in text and footnote (Dominica, Martinique, and St. Lucia), 414; Not. Nat., No. 13, 1939, 1, in text; Check List Birds West Indies, 1940, 23 (West Indies: Dominica; Martinique; St. Lucia; fairly common); ed. 2, 1945, 24; Auk, lviii, 1941, 366 (Dominica; British West Indies; eggs).

(?) *Buteo platypterus rivieri* VERRILL, Add. to Avif. Dominica, 1905 (Dominica, Lesser Antilles).

BUTEO PLATYPTERUS ANTILLARUM Clark

ANTILLEAN BROAD-WINGED HAWK

Adults (sexes alike).—Similar to the typical subspecies but smaller and with the chin and throat more abundantly streaked (only one median streak in typical *platypterus*).

Juvenal (sexes alike).—Similar to that of the typical form, but with the under wing coverts generally much suffused with tawny-buff (whitish in *platypterus*).

Natal down.—Not known.

Adult male.—Wing 254.5–268 (260.4); tail 148.1–163.5 (154.9); culmen from cere 18.4–19.8 (18.8); tarsus 53.2–57.9 (55.1); middle toe without claw 28.6–31.7 (30.2 mm.) (4 specimens).

Adult female.—Wing 260.8–272.6 (267.4); tail 153.6–166.6 (158.9); culmen from cere 19.3–20.5 (19.9); tarsus 54–57 (55.4 mm.).[56]

Range.—Resident on Barbados (formerly?), St. Vincent, Grenadines (including Bequia, Mustique, Canouan, Carriacou), Grenada, and Tobago.

Type locality.—Chateaubelair, St. Vincent, Lesser Antilles.

Buteo latissimus (not *Falco latissimus* Wilson) Sharpe, Cat. Birds Brit. Mus., i, 1874, 193, part.—Cory, Ibis, 1886, 473 (St. Vincent); Auk, iv, 1887, 40, part (Lesser Antilles except Antigua); x, 1893, 220 (Tobago); Birds West Indies, 1889, 198, part (Lesser Antilles, part); Cat. West Indian Birds, 1892, 99, part (St. Vincent; Bequia; Canouan; Carriacou; Barbados).—Wells, Proc. U. S. Nat. Mus., ix, 1887, 622 (Grenada; breeding; descr. nest and eggs).—Feilden, Ibis, 1889, 489, in text (Barbados).—Warren, Birds Pennsylvania, 1890, ed. 2, 130, part.—Fisher, Hawks and Owls United States, 1893, 79, part.—American Ornithologists' Union, Check-list, 1895, 133, part.

Buteo pennsylvanicus (not *Falco pennsylvanicus* Wilson) Lawrence, Proc. U. S. Nat. Mus., i, 1878, 194 (St. Vincent), 273 (Grenada); i, 1879, 487, part (St. Vincent; Grenada).—Lister, Ibis, 1880, 43 (St. Vincent).—Cory, List Birds West Indies, 1885, and rev. ed., 1886, 22, part (Antilles, part).—Wells, List Birds Grenada, 1886, 6.—Sharpe, List Vert. Anim. Zool. Soc. London, ed. 9, 1896, 382 (Grenada).

Buteo antillarum Clark, Proc. Biol. Soc. Washington, xviii, 1905, 62 (Chateaubelair, St. Vincent, Lesser Antilles; coll. E. A. and O. Bangs); Proc. Boston Soc. Nat. Hist., xxxii, 1905, 241 (St. Vincent, Grenada, Bequia, Mustique, and Carriacou; descr.; crit.; habits; descr. nest and eggs).—Riley, Auk, xxv, 1908, 271 (synonymy; range; crit.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 189 (type in Mus. Comp. Zool.).

Buteo platypterus antillarum Riley, Auk, xxv, 1908, 271, part (synonymy; range; crit.).—Burns, Wils. Bull., xxiii, 1911, 196, part (Barbados, St. Vincent, Bequia, Mustique, Cannouan, Carracou, Grenada, Tobago).—Swann, Synopt. List Accip., pt. 2, 1919, 50; Synop. Accip., ed. 2, 1922; 82; Monogr. Birds Prey, i, 1928, 405, part (monogr.).—Peters, Check-list Birds of World, i, 1931, 237.—Bond, Birds West Indies, 1936, 66, 67, in text (West Indies:

[56] Three specimens; measurements supplied by Dr. Stuart T. Danforth of Mayagüez, Puerto Rico; none seen by me.

St. Vincent, Grenada, larger Grenadines formerly Barbados; descr.), 414; Check-list Birds West Indies, 1940, 24 (St. Vincent, larger Grenadines, Grenada, Tobago); ed. 2, 1945, 24; Proc. Acad. Nat. Sci. Philadelphia, xciv, 1942, 91 (Tobago, not uncommon; Little Tobago).

Subgenus BUTAETES Moeschler

Large Buteones (wing about 400–493 mm.), resembling *Buteo*, but with tarsus (except planta tarsi) densely feathered to base of toes, tarsi relatively shorter, toes relatively shorter and weaker, and plumages of thighs more elongated.

Bill moderate in size or, relatively, rather small, its profile from above rather narrowly cuneate, its width where anterior margin of cere touches maxillary tomium decidedly less than length of outer claw, the width of gape at rictus not greater than length of middle toe without claw; culmen strongly and regularly decurved from base, the maxillary unguis relatively rather long (nearly half the length of the corneous rhinotheca); gonys a little less than half as long as culmen, slightly convex, slightly ascending terminally, not at all ridged, the width of gnathotheca, at base decidedly greater than length of gonys; maxillary tomium very slightly to distinctly sinuated; anterior margin of cere strongly sinuated, convex in front of nostril, slightly concave and strongly receding below; nostril relatively rather large, longitudinally oval to broadly oval, about midway between upper and lower edges of cere, the anterior end narrower than the posterior end. Wing long and pointed, the longest primary exceeding distal secondary by slightly (*B. lagopus*) to decidedly (*B. hemilasius*) less than two-fifths the length of wing; third or fourth primary longest, the first equal to or longer than seventh; inner webs of four outer primaries abruptly emarginated. Tail slightly to decidedly more than half as long as wing, its tip slightly but decidedly rounded. Tarsus one-sixth (*B. hemilasius*) to more than one-fifth (*B. lagopus*) as long as wing, slightly (*B. hemilasius*) to much (*B. lagopus*) less than one-third as long as tail, densely feathered, except on planta tarsi, to base of toes, the planta tarsi with irregular hexagonal scutella, these larger on lower portion, where some of them (especially in *B. hemilasius*) are much larger, and distinctly transverse, with indication of forming a single longitudinal series; middle toe half as long as tarsus or slightly less; outer toe decidedly longer than inner toe, extending to or nearly to middle of third phalanx of middle toe, the inner extending but little if any beyond base of same phalanx; hallux about as long as inner toe, its claw slightly to decidedly longer than the digit; claws moderate in size and curvature, acute, conspicuously graduated in size, that of outer toe about three-fifths as long as that of hallux.

Plumage and coloration.—Plumage full, softer and more blended

in *B. lagopus*, more firm, with feathers distinctly outlined, in *B. hemilasius*; loral region densely covered with antrorse feathers with bristlelike tips, the latter more or less recurved terminally, those on lower portion of lores straight and directed downward; tips of outer and longer primaries subacuminate; plumelike feathers of thighs greatly developed, the tips of longer ones reaching to base of toes; tarsi (except planta tarsi) densely covered with shorter feathers to base of toes. Coloration extremely variable, the colors mostly brown and white, or buffy white, intermixed in adults with grayish and blackish, the young more brown and buffy; tail always barred or banded, at least on basal half. A melanistic phase, in which the plumage (at least in adults) is deep black, with white on forehead, inner webs of primaries (broader proximal portion) at basal half of tail.

Range.—Northern parts of Northern Hemisphere. (Two species, one of them restricted to eastern Asia.)

BUTEO LAGOPUS S.-JOHANNIS (Gmelin)

American Rough-legged Hawk

Adult (sexes alike).—Light phase: Extremely variable, the following description based on a series rather than taken from an individual: Forehead and lores buffy whitish; top of head, cheeks, auriculars, occiput and nape the same, streaked with fuscous, sometimes washed with cinnamon-rufous; scapulars, interscapulars, and upper back similar, but each feather with a very broad medioterminal dark fuscous or fuscous-black mark, making these regions much more heavily streaked, and, consequently, much more blackish brown in appearance than the nape and head; upper wing coverts varying from dark hair brown to fuscous-black, the lesser ones usually tipped with dull Saccardo's umber; the median and greater ones sometimes with partly concealed indistinct bars of darker brownish, and with (rarely) the white basal part of the feathers showing; secondaries grayish hair brown becoming whitish on the inner edge of the inner web, narrowly tipped with whitish, and crossed with usually seven rather irregular bars of fuscous or chaetura drab; primaries externally fuscous-black, very broadly tipped with the same and with this color extending along the shaft on the inner web where, proximal to the point of emargination of the web, it sometimes forms small incomplete bars on the rest of the inner webs, which are white; the fourth primary (from the outside) the longest; third equal to fifth; second intermediate between fifth and sixth; first equal to eighth; the four outermost primaries with the inner webs strongly emarginated; lower back and rump like the upper back but darker, the pale markings much reduced in extent, sometimes even wholly wanting; upper tail coverts whitish barred with fuscous-black, the middle ones most

heavily, the lateral ones least, so marked, and the middle ones often, the lateral ones less frequently, washed with cinnamon-rufous; tail white on basal two-thirds and narrowly, but sharply, tipped with white; subterminal portion (nearly one-third of feather) pale mottled mouse gray or grayish hair brown, sometimes tinged with Saccardo's umber

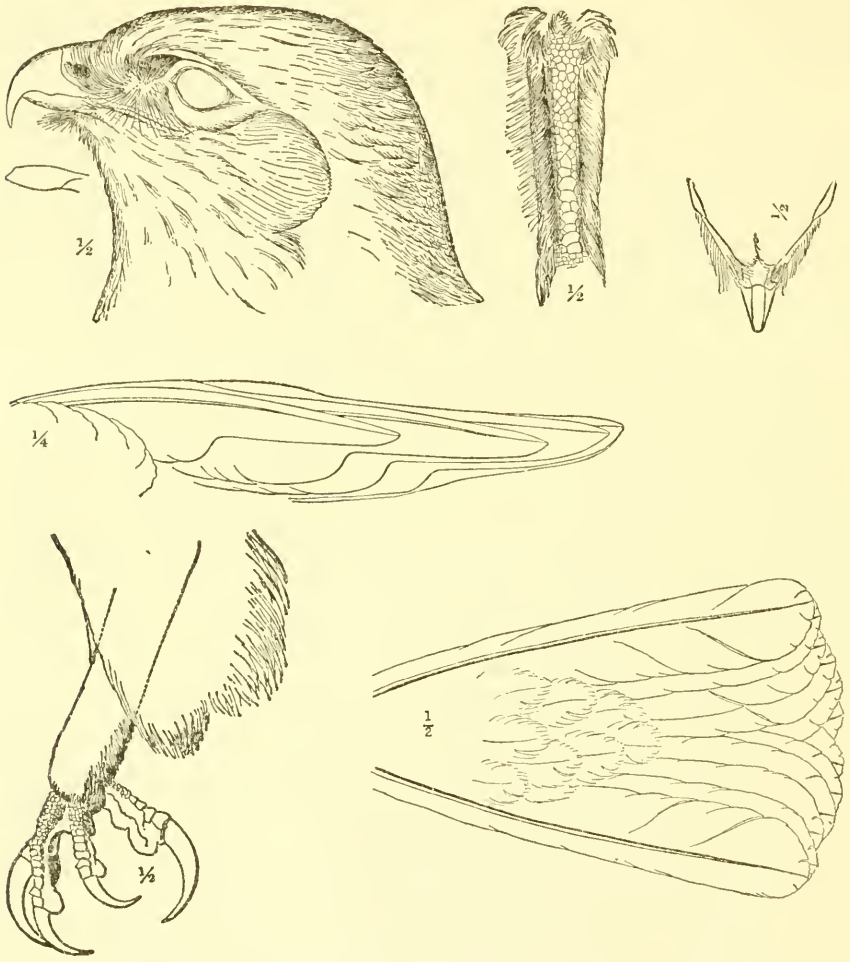

FIGURE 19.—*Buteo* (*Butaetes*) *lagopus*.

or cinnamomeous, with a broad zone of black or fuscous-black next to the terminal white, and anterior to this three narrow and irregular bands of the same; chin and throat white, sometimes lightly washed with buff, streaked narrowly with fuscous; breast similar but usually more tawny in its wash and with the fuscous streaks broadened out into very large terminal V-shaped spots on the individual feathers,

these marks sometimes so broad as to be almost conterminous, giving a blackish appearance to the breast; upper abdomen whitish washed with grayish or with pale tawny and sparsely barred or shaft-streaked with fuscous; lower abdomen, sides, flanks, and thighs similar but more abundantly barred with fuscous, sometimes very abundantly so, in which case the gray or tawny wash is also accentuated: tarsi feathered to the toes; under tail coverts whitish usually immaculate, occasionally very sparingly marked with fuscous; under wing coverts whitish marked abundantly with fuscous-black; iris deep light hazel: naked eyebrow plumbeous; cere and rictus light yellowish green; bill deep black becoming pale blue on the basal half of the lower mandible and on the base of the upper, below the cere; toes pure light lemon yellow; claws deep black. MELANISTIC PHASE: General plumage fuscous-black to almost solid black; the occiput and nape often streaked by the whitish edges of the feathers; upper wing coverts and scapulars sometimes slightly paler terminally and laterally; remiges as in light phase but the secondaries darker gray; rest of upperparts fuscous-black, the upper tail coverts sometimes tipped with white and the lateral ones occasionally barred with whitish and washed with cinnamomeous; rectrices dark hair brown becoming whitish only on the basal third or less, tipped with whitish, with a very broad subterminal blackish bar and, anterior to this, four narrower bands of the same; chin, throat, and entire underparts fuscous-black, the feathers of the lower breast, abdomen, and thighs sometimes sparsely mottled with mikado brown; iris burnt umber; eyebrow olivaceous; cere and rictus rich chrome yellow; bill black, light blue basally, the lower mandible tipped with yellow; toes rich chrome yellow; claws black.

Immature (sexes alike).—LIGHT PHASE: Similar to the adult of the same phase, but with the underparts more heavily washed with buff, tawny, or cinnamomeous; the dark markings on the abdomen larger and more confluent, forming a practically solid broad fuscous-black band across the abdomen; tail as in adult, but the terminal portion unbarred hair brown to fuscous, sometimes slightly mottled with darker, and narrowly tipped with dull whitish; chin and middle of throat usually less streaked than in adults, iris hazel; naked eyebrow plumbeous; cere and rictus light greenish yellow; bill black, becoming light grayish blue basally on the mandible; toes light lemon yellow; claws black. MELANISTIC PHASE: Similar to adults of this phase, but averaging slightly more mottled with mikado brown above as well as below; tail unbarred, dark hair brown to dull fuscous; all but the middle pair of rectrices becoming whitish spotted with fuscous on their inner webs; the middle pair and the outer webs of the lateral feathers often indistinctly longitudinally mottled with paler grayish; iris pale

brownish gray; cere and gape greenish yellow; bill blackish; feet wax yellow; claws black.

Juvenal (sexes alike).—LIGHT PHASE: Same as the immature (first winter plumage). MELANISTIC PHASE: Same as the immature (first winter plumage).

Natal down.—Varies from almost pure white to pale brownish gray; down present on the front and sides of the tarsi to the toes.

Adult males.—Wing 397–416 (407.4); tail 210–232.2 (222.4); culmen from cere 20.8–23.9 (22.3); tarsus 65.8–75.8 (69.2); middle toe without claw 32–38.2 (35.3 mm.) (22 specimens).

Adult females.—Wing 395–438 (411); tail 212.5–234.9 (222.1); culmen from cere 20–26.4 (23); tarsus 66–72.4 (69.2); middle toe without claw 31.8–36.9 (33.8 mm.) (9 specimens).

Range.—Breeds from the interior of Alaska (Fort Yukon), and the Aleutian Islands and southwestern Alaska, Yukon Territory (Herschel Island), Victoria Island, southwestern Baffin Island, Southampton Island, northern Mackenzie (Anderson River, Franklin Bay, Horton River, etc.), northern Keewatin (Cape Fullerton), northern Quebec (Ungava), and northern Labrador (Cape Chidley, Port Burwell, Okak, Ailik, Davis Inlet, Hamilton Inlet) south to southeastern Quebec (Wolf Bay), Newfoundland (Codroy), southern Ungava (Seal Lake), probably Manitoba (Churchill), and southern British Columbia (Quesnal).

Winters from southern British Columbia (Sumas, Okanagan Valley), central Alberta (Glenevis), southern Saskatchewan (Eastend), North Dakota (Charlson, Argusville), Minnesota, Nebraska, Wisconsin, Michigan, southern Ontario, southern Quebec (Montreal, Quebec), Newfoundland (Avalon Peninsula), New Hampshire, and Maine (Norway) south to Delaware, southeastern and northwestern Pennsylvania (Philadelphia, Erie), to Maryland (Baltimore, Sandy Spring), and casually to the District of Columbia (Washington), Ohio, Indiana, Illinois, Missouri, Oklahoma (Norman, Tyrone), Kansas, Colorado, Utah, Nevada, casually to New Mexico (Zuni, Tularosa, Rio Mimbres), southern Arizona (Tucson (?), Fort Whipple), Washington, Oregon, and California (south as far as Santee, where rare); casual in North Carolina (Blowing Rock), South Carolina (Capers Island), Louisiana (Mandeville, West Baton Rouge), Georgia (Thomasville), West Virginia (French Creek), and Texas (Fredericksburg, Electra, Aransas River). Accidental in Bermuda and St. George Island, Pribilof Islands.

Type locality.—"In freto Hudsonis et nova terra," that is, Newfoundland.

Falco s.-johannis GMELIN, Syst. Nat., i, pt. 1, 1788, 273 (Hudson Strait and St. Johns, Newfoundland; based on *St. Johns Falcon* Latham, Synop. Birds, i,

1781, 77; Pennant, Arctic Zool., ii, 1785, 200, pl. 9, upper fig.).—Latham, Index Orn., i, 1790, 34; Gen. Hist. Birds, i, 1821, 276.—Shaw, Gen. Zool., vii, pt. 1, 1809, 150.—Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 32; Contr. Maclurian Lyc., i, 1827, 11.—Audubon, Orn. Biogr., ii, 1831, 381.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 98.—Townsend, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151 (nw. United States).

Falco sancti-joannis Daudin, Traité d'Orn., ii, 1800, 105.

Buteo sancti-johannis Cuvier, Règne Anim., i, 1817, 323.—Jardine, ed. Wilson's Amer. Orn., ii, 1832, 288.—Dekay, Zool. New York, ii, 1844, 7, pl. 2, fig. 3.—Kaup, Isis, 1847, 327 (monogr.); *in* Jardine's Contr. Orn., 1850, 75.—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 1, 1862, 2 (monogr.).—British Ornithologists' Union, List. Brit. Birds, ed. 2, 1915, 338 (one doubtful record).

Butaëtes sancti-johannis Bonaparte, Geogr. and Comp. List, 1838, 3.—Gambel, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 45 (California).

Buteo (*Archibuteo*) *st. johannis* Kaup, Mus. Senckenb., iii, Heft 22, 1845, 261.

Buteo St. Johannis Kaup, Isis, 1847, 369, 373, 380.

Buteo s. johannis Jewett, Murrelet, xxvii, 1946, 13 (Clackamas County, Oreg.).

Buteo lagopus sancti-johannis Hartert, Vög. pal. Fauna, ii, 1914, 1131 (monogr.).—Oberholser, Auk, xxxvi, 1919, 42; xxxvii, 1920, 280.—Dawson, Birds California (stud. ed.), iii, 1923, 1696 (genl.; California).—Simmons, Birds Austin Region, 1925, 105 (Austin, Tex.; habits; descr.; distr.; etc.).—Jewett, Condor, xxviii, 1926, 41 (Seaside, Oreg.).—Skinner, Condor, xxx, 1928, 237 (Yellowstone Park, winter).—Munro, Condor, xxxi, 1929, 114 (food habits).—Cahn, Wils. Bull., xli, 1930, 215 (Little Egypt, Ill.).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 189 (distr.; Lassen Peak region, n. California).—Bradlee and Mowbray, Proc. Boston Soc. Nat. Hist., xxxix, 1931, 328 (Bermuda; 1 spec. only).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 23 (Missouri; common winter res.).—Taverner, Birds Canada, 1934, 132, in text (Canada).—Greene, Auk, liii, 1936, 209 (Hyde County, N. C.; 1 seen).—Sprunt and Murray, Auk, liii, 1936, 77, in text (Blowing Rock, N. C.; 2 seen Aug. 14, 1935).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 129 (Connecticut Valley, Mass.; habits).—Groebbels, Der Vögel, ii, 1937, 116 in text (nesting close to other birds), 171 (data on breeding biology), 231, in text (uses same nest for years).—Gross, Auk, liv, 1937, 21 text (Labrador coast; common breeding).—Errington and Breckenridge, Wils. Bull., l, 1938, 120, in text (Wisconsin; Iowa; Minnesota, and South Dakota; food habits).—Cruickshank, Auk, lvi, 1939, 475 text (Long Island, N. Y.; eating carrion); Birds Around New York City, 1942, 138 (New York City region).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 51 (common winter res.; food; habits; color phases).—Witherby et al., Handbook Brit. Birds, iii, 1939, 48, in text, 50, in text (distr.).—Dear, Trans. Roy. Can. Inst., xxiii, pt. 1, 1940, 125 (Thunder Bay, Lake Superior, Ontario; hypothetical breeder; frequently seen during June; 1 pair constantly seen during summer of 1931).—Gabrielson and Jewett, Birds Orgeon, 1940, 190 (Oregon; rare straggler in west; winter res. and reg. migr. in east; habits; food).—Pierce, Proc. Iowa Acad. Sci., xlvii, 1941, 376 (n. e. Iowa; winter; fairly common).—Sprunt, Auk, lviii, 1941, 573 (Florida; winter records).—Pearson, Brimley, and Brimley, Birds North Carolina, 1942, 97 (North Carolina).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 177 (Kansas; common winter res. in w. part).

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rare trans. vis.; specs.).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 189 (Cambridge region, Mass.; trans. vis.; records).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 251 (Iowa; winter res.).—Widmann, Birds Missouri, 1907, 99 (irreg. winter res.).—Knight, Birds Maine, 1908, 233 (winter res.).—Stone, Birds New Jersey, 1908, 164 (New Jersey; descr.; winter vis.; spec.).—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 471 (Illinois and Wisconsin).—Dawson and Bowles, Birds Washington, ii, 1909, 511 (Washington; habits; distr.).—Zimmer, Proc. Nebraska Orn. Union, v, pt. 2, 1911, 21 (Dawes County, Nebr.; Dec. record).—Barrows, Michigan Bird Life, 1912, 282.—Sclater, Hist. Birds Colorado, 1912, 178 (Colorado; not uncommon e. plains; Nov. to Mar.).—Grave and Walker, Birds Wyoming, 1913, 42 (Wyoming, uncommon migrant).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 81.—Tyler, Pacific Coast Avif., No. 9, 1913, 43 (Fresno County, Calif.; winter vis.).—Anderson, Rep. Dept. Mines Canada for 1914 (1915), 165 (Collinson Point, Alaska, specs.): for 1916 (1917), 379 (specs., Franklin Bay, Coronation Gulf, Northwest Territories).—Eaton, Birds New York, ii, 1914, 88, pls. 43, 48 (irreg. winter vis.).—Swarth, Pacific Coast Avif., No. 10, 1914, 26 (Arizona; Fort Whipple and near Tucson); No. 22, 1934, 24 (Akutan and Unalaska Island, Alaska; specs.; head and foot colors; food; breeding; nest).—Brooks, Bull. Mus. Comp. Zool., lix, 1915, 398 (Herschel Island, May 21; Humphrey Point and Demarcation Point, Arctic coast, May 13 and 24).—Gianini, Auk, xxxiv, 1917, 400 (Stepovak Bay, Alaska Peninsula, breeding).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 33 (monogr.; Iowa).—Howell, Auk, xxxv, 1918, 351 (District of Columbia, Dec. to Mar.).—Burns, Orn. Chester County, Pa., 1919, 54 (Chester County, Pa.; rare winter vis.; records).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 169 (North Carolina; descr.; range).—Swann, Synopt. List Accip., pt. 2, 1919, 53.—Dice, Condor, xxii, 1920, 180 (Kuskokwim River, Alaska, numerous in Aug.).—Hanna, Auk, xxxvii, 1920, 253 (St. George Island, Pribilof group, fall 1917).—Townsend, Mem. Nuttall Orn. Club, No. 5, 1920, 103 (Essex County, Mass.; winter vis.; habits; records).—Mailliard, Condor, xxiii, 1921, 32 (Los Banos, Calif.; spec.).—Over and Thoms, Birds South Dakota, 1921, 85 (South Dakota; migr.; food habits).—Saunders, Pacific Coast Avif., No. 14, 1921, 63 (Montana; winter vis.; distr.; a few summer records; formerly breeding).—Wood, Auk, xxxviii, 1921, 282 (Portage Lake, Mich.), 590 (Michigan records); Misc. Publ. Mus. Zool. Univ. Michigan, No. 10, 1923, 40 (North Dakota; migr. and winter vis.; specs.).—Bailey, Condor, xxiv, 1922, 212, in text (Corvallis, Mont.).—Gabrielson, Condor, xxiv, 1922, 33, in text (Harney Valley, Oreg.); Auk, xli, 1924, 556 (Wallowa; near Enterprise, Oreg.); Condor, xxxiii, 1931, 112 (Medford, Oreg.).—Magee, Auk, xxxix, 1922, 258, in text (Whitefish Point, Mich.; migr.).—Griscom, Birds New York City Region, 1923, 192 (status New York City region).—Johnson, Auk, xl, 1923, 547 (Lake County, Minn.; Aug.; seen).—Preble and McAtee, North Amer. Fauna, No. 46, 1923, 81 (St. George Island, Pribilof group, fall 1917).—Soper, Auk, xl, 1923, 498 (Wellington and Waterloo Counties, Ontario); Nat. Mus. Canada Bull. 53, 1928, 106 (s. Baffin Island, nesting).—Beck, Auk, xli, 1924, 292, in text (Pennsylvania German common names).—Huey, Condor, xxvi, 1924, 74 (Fanita Ranch, near Santee, San Diego County, Calif.).—Mitchell, Can. Field Nat., xxxviii, 1924, 109 (Saskatchewan; Indian Head; rare transient; specs.).—Mousley, Auk, xli, 1924, 583 (Hatley, Quebec).—Nice and Nice, Birds Oklahoma, 1924, 43 (genl.; Oklahoma).—Pindar, Wils. Bull., xxxvi, 1924, 205 (status, e. Arkansas); xxxvii, 1925, 185 (status, Fulton County,

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Archibuteo lagopus var. *sancti-johannis b. sancti-johannis* Coues, Birds Northwest, 1874, 361.

Archibuteo lagopus β sancti-johannis Ridgway, Field and Forest, ii, 1877, 210 (Colorado); Orn. 40th Parallel, 1877, 589 (Truckee Valley, w. Nevada, Dec.); *in* Belding, Proc. U. S. Nat. Mus., i, 1879, 436 (c. California, winter).

Archihiteo logopus sancti-johannis Johnston, Birds West Virginia, 1923, 88 (West Virginia).

Triorchis lagopus sanctijohannis Oberholser, Auk, xxxvi, 1919, 283.—Swann, Synop. Accip., ed. 2, 1922, 88; Monogr. Birds Prey, i, 1928, 424 (monogr.).—Bailey, Birds New Mexico, 1928, 170 (genl.; New Mexico).

Falco lagopus (not of Brünnich, 1764) Gmelin, Syst. Nat., i, pt. i, 1788, 260, part (North America).—Wilson, Amer. Orn., iv, 1811, 59, pl. 33, fig. 1.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 349; iv, pt. 2, 1825, 270; (Obs. Wilson's Amer. Orn., 1826, [10]), [130]); Ann. Lyc. Nat. Hist., New York, ii, pt. 1, 1826, 32; Contr. Maclurian Lyc., i, 1827, 11.—Nuttall, Man. Orn. United States and Canada Land Birds, 1832, 97.—Audubon, Orn. Biogr., ii, 1834, 377, pl. 166; v, 1839, 217, pl. 422.

Buteo lagopus Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 52, 69 pl. 28.—Audubon, Synopsis, 1839, 8; Birds Amer., 8vo ed., i, 1840, 46, pl. 11.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 99.—Giraud, Birds Long Island, 1844, 6 (Long Island, N. Y., not common).—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 1, 1862, 1, part (monogr.); No. 36, livr. 10, 1873, 104, part.—Trippe, Comm. Essex Inst., vi, 1871, 113 (Minnesota; few seen in autumn).—Taverner, Birds Canada, 1934, 131 (Canada; general); Canada's Eastern Arctic, 1934, 119, in text (e. Canada: breed. sw. Baffin Island; Southampton Island, Melville Peninsula Hudson Bay coast, Labrador coast); Can. Water Birds, 1939, 144 (field char.; Canada).—Taverner and Sutton, Ann. Carnegie Mus., xxiii, 1934, 26 (Churchill, Manitoba; reg. and fairly common transient; apparently nests when lemmings are abundant; plumage; nesting).—Howard, Condor, xxxviii, 1936, 35, in text (Rancho La Brea, Calif.; Pleistocene bones).—Lincoln, Bird-Banding, vii, 1936, 41 (Waukegan, Ill., Shelby, Ind.; banding recovery).—Dixon and Bond, Condor, xxxix, 1937, 100, text (Tule Lake, Calif.; occ.).—Ricker and Clarke, Contr. Roy. Ontario Mus. Zool., No. 16, 1939, 7 (Lake Nipissing, Ontario; spec.).—Shortt, Contr. Royal Ont. Mus. Zool., xvii, 1939, 11 (Yakutat Bay, Alaska; 2 recs.; 1 spec.).—Clarke, Nat. Mus. Canada, Bull. 96, 1940, 46 (Thelon Game Sanctuary, nw. Canada).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 43 (Prince Edward County, Ontario; reg. migr., most frequent in fall).—De May, Condor, xliv, 1942, 229 (bones; Buena Vista Lake, Calif.).—Hawksley, Auk, lix, 1942, 436, in text (Churchill, Manitoba; nests).—Allan and Sime, Wils. Bull., lv, 1943, 34 (Texas Panhandle; uncommon, winter res. only).—Munro, Can. Journ. Res. D, xxiii, 1945, 54 (Cariboo Parklands, British Columbia; rare transient).

Archibuteo lagopus Bonaparte, Consp. Gen. Av., i. 1850, 17; Rev. Mag. Zool., vi, 1854, 532.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 283 (Shoalwater Bay, Washington; Zuni River, N. Mex.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 32 (Fort Steilacoom and Shoalwater Bay, Wash.; Bodega, Calif.; Fort Fillmore, Fort Massachusetts, and near Zuni, N. Mex.; Membres to Rio Grande).—Brewer, North Amer. Ool., i, 1857, 36, pl. 3, fig. 29—Baird, Cat. North Amer. Birds, 1859, No. 30.—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 46 (Fort Whipple, Ariz., winter).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 272 (Fort Yukon, Alaska; spec.; rare).—Gray, Hand-list, i, 1869, 9, No. 81, part.—Cooper, Orn. California, Land Birds, 1870, 483.—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; not common).—Ridgway, Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois); Man. North Amer. Birds, 1887, 240.—Bendire, Proc. Boston Soc. Nat. Hist., xviii, 1875, 163 (Camp Harney, Oreg., spec.); Life Hist. North Amer. Birds, i, 1892, 255.—Kumlien, Field and Forest, 1877, 127 (Indian Territory and Kansas, abund. in Dec.).—American Ornithologists' Union, Check-list, 1886 and ed. 2, 1895, No. 347; ed. 3, 1910, 161.—Sharpe, Hand-list, i, 1899, 262, part (Alaska).—Taverner, Birds Western Canada, 1926, 197 (fig.; descr.; habits; distr., w. Canada); Nat. Mus. Canada, Bull. 50, 1928, 93 (near Belvedere, Alberta; fall records; winters).

Falco spadiceus Gmelin, Syst. Nat., i, pt. 1, 1788, 273 (Hudson Bay and Newfoundland; based on "*Chocolate Falcon* Forster, Act. angl., lxii, p. 281 et amer. catal. n. 9"; etc.).—Latham, Index Orn., ii, 1790, 27; Gen. Hist. Birds, i, 1821, 279.—Daudin, Traité d'orn., 1800, 109.

Buteo spadiceus Vieillot, Ois. Amér. Sept., i, 1807, 34.

? *Falco novae-terrae* Shaw, Gen. Zool., vii, pt. 1, 1809, 147 (Labrador; *ex* Latham, Index Orn.).

Falco niger (not of Gmelin, 1788) Wilson, Amer. Orn., vi, 1812, 82, pl. 53, figs. 1, 2 (e. Pennsylvania, etc.; coll. Peale's Mus., *ex Falco niger*, the *Black Hawk*, Bartram.).—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 349; Obs. Wilson's Nomencl. Amer. Orn., 1826 [10].

Buteo niger Stephens, Shaw's Gen. Zool., xiii, pt. 2, 1826, 47 (North America).

Archibuteo niger Pelzeln, Verh. zool.-bot. Wien, 1862, 153.

Butco ater Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 482 (new name for *Falco niger* Wilson).

Falco harlani (not of Audubon) Peabody, Rep. Orn. Massachusetts, 1839, 269.

Archibuteo ferrugineus Townsend, Cruise *Corwin* in 1885 (1887), 92 (lower Kowak River, Alaska).

Buteo platypterus Soper, Auk, xl, 1923, 498 (Wellington and Waterloo Counties, Ontario).

BUTEO LAGOPUS KAMTSCHATKENSIS Dementiev

Siberian Rough-legged Hawk

Adult (sexes alike).—Similar to the light phase of *Buteo lagopus s.-johannis*, but larger and with the pale margins of the feathers of the upperparts broader, giving the bird a paler appearance; below whiter with the dark streaks narrower; upper tail coverts white with only a median brownish streak. This race has no melanistic phase.

Immature and *juvenal* (sexes alike).—Similar to the corresponding plumage of *Buteo lagopus s.-johannis* but with the pale margins of the dorsal feathers wider and whiter; size larger.

Natal down.—Not known, probably similar to that of *Buteo lagopus s.-johannis.*

Adult male.—Wing 416–435 (428.2); tail 222–231.4 (227.1); culmen from cere 20–22 (21.5); tarsus 65–67 (66); middle toe without claw 34–34.9 (34.3 mm.) (3 specimens).

Adult female.—Wing 436–470 (452); tail 230–241 (236.6); culmen from cere 22–23.5 (23.1); tarsus 68–70 (69); middle toe without claw 40–42.5 (41.2 mm.) (3 specimens).

Range.—Breeds throughout northern Siberia from the Obi River to the Kolyma River and Kamchatka, to Bering Island, and to the vicinity of St. Michael and the Noatak River, east along the Arctic coast to Point Barrow, northwestern Alaska; south to Lake Baikal and Ussuriland and the Kurile Islands.

Winters in Ussuriland, Bering Island (?), central Asia, Turkestan, Transcaspia, the Black Sea, rarely to northern Iran, to China, Korea, and to Japan (Honshu), and Ishigaki, Ryukyu Islands. Said to have been taken once in Poland, where it would have to be considered accidental.

Type locality.—Kichtschik River, Kamchatka.

Accipiter lagopus Pallas, Zoogr. Rosso-Asiat., i, 1826, 360, part, pl. 10.

Buteo lagopus Middendorf, Sibir. Reis., ii, pt. 2, 1853, 126.—Homeyer, Journ. für Orn., xvi, 1868, 254 (e. Siberia).—Adams, Ibis, 1878, 427 (St. Michael, Alaska).—Bunge, Mel. Biol. Bull. Acad. Imp. Sci. St. Pétersbourg, xi, livr. 4, 1882, 593 (Lena Delta, Siberia).—Dybowski, Bull. Soc. Zool. France, viii, 1883, 351.—Popham, Ibis, 1897, 98 (Yenesei River, Siberia; descr. nest and eggs).

Archibuteo lagopus Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 272 (St. Michael, Alaska).—Taczanowski, Journ. für Orn., xx, 1872, 347 (e. Siberia); Bull. Soc. Zool. France, 1876, 123; 1883, 330; Orn. Fauna Vost. Sibir., 1877, 10.—Blakiston and Pryer, Ibis, 1878, 248 (Hakodadi, Japan); Trans. Asiat. Soc. Jap., viii, 1880, 238; x, 1882, 182.—Seebohm, Ibis, 1878, 323 (Kooraika River, Siberia).—Blakiston, Amend. List Birds Japan, 1884, 67.—Stejneger, U. S. Nat. Mus., Bull. 29, 1885, 208 (Bering Island, Kamchatka; crit.).—Popham, Ibis, 1898, 507 (Yenesei River, Siberia).—Sharpe, Hand-list, i, 1899, 262 (part).—Grote, Falco (Sonderheft), 1925, 172 (Yenesei region, Siberia; winter).

Archibuteo lagopus lagopus Schalow, Journ. für Orn., lvi, 1908, 102 (centr. Asia).—Thayer and Bangs, Proc. New England Zool. Club, v, 1914, 33 (breeding near Cape Bolohaja Baranov, e. Siberia).

Aquila lagopus Seebohm, Ibis, 1884, 43 (Japan).

Archibuteo lagopus var. *sibirica* Sewerzow, Journ. für Orn., xxiii, 1875, 170 (Turkestan; nomen nudum).

Archibuteo lagopus sancti-johannis Nelson, Cruise *Corwin* in 1881 (1883), 79 (Alaskan coast of Bering Sea).—?McLenegan, Cruise *Corwin* in 1885 (1887), 78 (Noatak River, nw. Alaska, breeding).

Buteo lagopus s. johannis Peters, Check-list Birds of World, i, 1931, 236, part (northwestern Alaska).—Dixon, Condor, xlv, 1942, 54 (Arctic Alaska; nest on Herschel Island).

Archibuteo pallidus (not *Buteo pallidus* Lesson, 1831; Java) Menzbier, Orn. Turkestan, i, 1888, 103 (Siberia, Turkestan, Kamchatka, Ussuri).

Archibuteo lagopus pallidus Swann, Synopt. List Accip., pt. 2, 1919, 53.—Domaniewski, Compt. Rend. Soc. Sci. Varsovie, xi, 1918, 485.

Buteo lagopus pallidus Hartert, Vög. pal. Fauna, ii, 1914, 1130 (syst. monogr.).—Pleske, Mem. Boston Soc. Nat. Hist., vi, 1928, 307 (crit.).—Stegmann, Journ. für Orn., lxxviii, 1930, 432 (Amurland); lxxix, 1931, 214 (distr.; Siberian-Manchurian borderlands); Faune U. R. S. S., No. 5, Falconiformes, 1937, Oiseaux, i, 215, 283 (crit.; descr.; ne. Siberia).—Peters, Check-list Birds of World, i, 1931, 236 (range).—Belopolski, Journ. für Orn., lxxxi, 1933, 421 (Anadyr region, Siberia).—Friedmann, Condor, xxxvi, 1934, 246, in text (St. Michael, Alaska); Auk, lv, 1938, 291, in text (crit.; distr.).—Witherby et al., Handbook Brit. Birds, iii, 1939, 48, in text, 50, in text (distr.).—Bailey, Auk, lix, 1942, 305, in text (nw. Alaska; spec.).—Brandt, Alaska Bird Trails, 1943, 357 (Hooper Bay region, Alaska).—American Ornithologists' Union, Auk, lxii, 1945, 439.

Triorchis lagopus pallidus Swann, Synop. Accip., ed. 2, 1922, 88 (Siberia e. of Obi Valley; Kamchatka; Ussuri; in winter to Black Sea, Turkestan; Caspian Sea; and China); Monogr. Birds Prey, i, 1928, 423 (monogr.).

Buteo lagopus kamtschatkensis Dementiev, Orn. Monatsb., xxxix, 1931, 54 (orig. descr.; distr.; Kichtschik River, Kamchatka).—Bergman, Kenntn. Nordostasiat. Vögel, 1935, 95 (Kamchatka; spec.; crit.; meas.; habits), 218 (Kurile Islands; spec.).—Friedmann, Auk, lv, 1938, 291, in text (crit.; distr.).

Subgenus RUPORNIS Kaup

Small buteonine hawks with the tarsus bare for the greater (lower) part and with the longest primary exceeding the distal secondary by much less than one-third the length of the wing.

Plumage.—Full, fairly compact: coloration brownish above, the underparts whitish barred or suffused with grayish rufous.

Range.—Tropical America from Mexico and the Lesser Antilles south to Argentina (two species with many races).

BUTEO MAGNIROSTRIS GRISEOCAUDA Ridgway

MIRADOR INSECT HAWK

Adult (sexes alike).—Upperparts nearly uniform grayish brown (dark drab to hair brown) the feathers with dusky shafts, and those of the dorsal region and wings with very narrow and rather indistinct paler margins, especially terminally: longer upper tail coverts buff, or pale ochraceous, marked with sharply defined transverse, nearly reniform spots of umber brown; tail light drab to drab, crossed by four bands of black, averaging about 12–15 mm. wide, or nearly as wide as the brownish gray interspaces; the width gradually decreasing, however, from the last, or subterminal one, which is succeeded by a narrower band of brownish gray, gradually passing into dull whitish at the terminal margin; extreme base of the tail (concealed by the

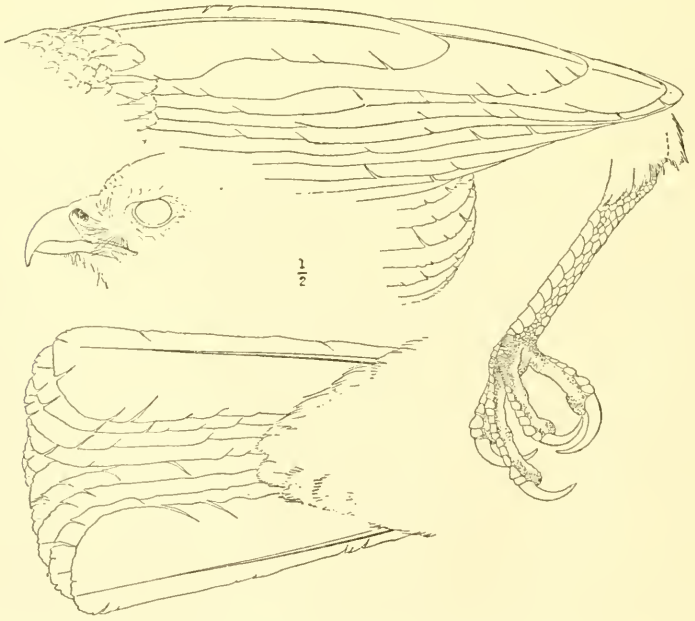

FIGURE 20.—*Buteo* (*Rupornis*) *magnirostris*.

coverts), buffy white, this becoming ochraceous-buff on the basal portion of the two lateral rectrices, on which this color occupies nearly the basal third; primaries brownish dusky to light fuscous on the outer webs and broad terminal areas; inner webs ferruginous paling to creamy white on the inner margins, barred with fuscous or fuscous-black; whole side of head uniform grayish brown, somewhat paler than the pileum; extreme anterior portion of the forehead dull whitish; chin and upper part of throat dull white, marked with narrow cuneate streaks of grayish hair brown; lower part of throat light buff, marked with similar, but larger streaks; jugulum and upper part of breast with darker hair brown prevailing, but the feathers much spotted or otherwise marked on the edges with buffy white, forming broken or irregular longitudinal stripes; rest of lower parts buffy white, the entire sides, lower part of breast, and upper part of abdomen marked with sharply defined transverse spots, or broad, somewhat reniform, bars, of orange-cinnamon to sayal brown; tibiae light ochraceous-buff, abundantly marked with narrow bars of brown; crissum deep creamy buff, passing into buffy white on lower tail coverts; lining of the wing light buff, marked with small spots and streaks of brown; iris bright orange red; bill dusky bluish ash clouded with light horn yellowish, greenish yellow at base of lower mandible; cere yellow; feet apparently deep yellow in life.

Juvenal (sexes alike).[57]—Upperparts much as in the adult, but pileum streaked with buffy white, the brown spots on upper tail coverts less transverse, or more cordate, and the brown tail bands narrower and less grayish, a fifth rather indistinct dusky band showing beyond the tips of the upper tail coverts; primaries without ferruginous markings, but spotted, in transverse bands, with grayish brown instead; lower parts pale buff to buffy whitish, approaching white anteriorly, with the throat, jugulum, breast, and sides marked with longitudinal guttate and lanceolate stripes and streaks of deep brown, these streaks largest and broadest on the sides, smallest on the throat; the spots becoming transverse on the middle abdomen, forming in most specimens indefinite bars; tibiae ochraceous-buff, marked with many small cordate and triangular spots of grayish brown.

Natal down.—Apparently unknown.

Adult male.—Wing 218–249 (228.7); tail 157–174.5 (164.6); culmen from cere 17.8–20.8 (19.9); tarsus 65.4–69.1 (66.4); middle toe without claw 29–33.6 (31.7) mm. (11 specimens).

[57] There seems to be no true intermediate or immature (first winter) plumage. Specimens changing from juvenal to adult plumage combine the characters of the two in various degrees and in different regions of the body, precluding the possibility of calling any one stage a true immature plumage.

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Adult female.—Wing 238–248 (243.2); tail 174.8–177.5 (176.3); culmen from cere 16.5–21 (19.4); tarsus 64.5–67.5 (65.9); middle toe without claw 29–34.7 (32.8 mm.) (4 specimens).

Range.—Resident from eastern and southern Mexico from Tamaulipas (Caballeros, Altamira, 60 miles south of Victoria, Santa Leonor, Río Cruz, etc.), Nuevo León, to Veracruz (Río Seco).

Type locality.—Mirador, Veracruz, Mexico.

Asturina magnirostris (not *Falco magnirostris* Gmelin) Sclater, Proc. Zool. Soc. London, 1856, 285 (Veracruz); 1859, 368 (Jalapa, Veracruz); 1864, 178 (vicinity of Mexico City).—Salle and Parzudaki, Cat. Oiseaux Méxique, 1862, 1 (Mexico).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico).

Buteo (*Rupornis*) *magnirostris* var. *griseocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 65 part (Río Seco, Veracruz), 88, part (syn.; descr.; "Mexico, from the Atlantic to the Pacific, from . . . Mirador to Mazatlán"; type from Mirador, Mexico, in coll. U. S. Nat. Mus.).

Buteo (*Rupornis*) *magnirostris* var. *griscocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 87 part (diagn.).

Buteo magnirostris griseocauda Peters, Check-list Birds of World, i, 1931, 237, part.—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 26 (ne. Mexico; Tamaulipas; Victoria, San Francisco, Guemes, Arroyo de La Presa); Wils. Bull., lii, 1940, 233, in text (Mexico: Tamazunchale; nest.; spec.); Condor, xlii, 1940, 259, in text (San Luis Potosí, Mexico; fairly common).—van Rossem, Ann. Mag. Nat. Hist., ser. 11, iv, 1939, 440, in text (crit.).—Brodkorb, Occ. Pap. Mus. Zool. Univ. Michigan, No. 425, 1940, 1, in text (crit.; type loc. restricted to Mirador, Veracruz), 3 (Tamaulipas: Río Cruz, Caballos, Altamira, Santa Leonor, 7 miles n. of Villagrán; Veracruz: Río Seco, Presidio, Buena Vista, Medellín, Miniatitlán; Tabasco: Balancan, La Reforma, Boca del Cerro, Tenosique, La Ribera; Chiapas: Palenque, El Aguacate; Guatemala: Virginia Plantation); Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 27 (Mexico: Veracruz; Tabasco; Chiapas; spec.).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region, sw. Tamaulipas; spec.).

Rupornis magnirostris griseocauda Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 39 (Chihuitán, Almoloya, near Barrio, and Santa Efigenia, Oaxaca; fresh color of unfeathered parts).—Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 578, 579 in text (crit.).—Ferrari-Pérez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Jalapa, Veracruz).—Richmond, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Altamira, Veracruz).

Rupornis griseocauda Gurney, Ibis, 1876, 482, in text (crit.).

Rupornis griseicauda Sharpe, Hand-list, i, 1899, 258, part.—Phillips, Auk, xxviii, 1911, 73 (Altamira, Caballeros, Río Cruz, and Santa Leonora, Tamaulipas).

Rupornis ruficauda griseicauda Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 94, in text, part.

Rupornis magnirostris griseicauda Swann, Synopt. List Accip., pt. 2, 1919, 55, part; Synop. Accip., ed. 2, 1922, 92, part; Monogr. Birds Prey, i, 1930, 440, part (monogr.).—Bangs and Peters, Bull. Mus. Comp. Zool., lxvii, 1927, 473 (Presidio, Veracruz).—Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 44, part (crit.; chars.; distr.).—Heilfurth, Journ. für Orn., lxxviii,

1930, 40 (habits; Veracruz).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 190, part (type specimen in Mus. Comp. Zool.).

Asturina ruficauda, Sclater and Salvin, Proc. Zool. Soc. London, 1869, 133, part (Córdoba and Jalapa, Veracruz; Mexico City); Nom. Av. Neotr., 1873, 118, part (Mexico part).

Rupornis ruficauda Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part (Aldama, Altamira, and Tampico, Tamaulipas; Alvarado, Colipa, Vega de Cazadero, Coátepec, Huatusco, Hacienda Tortugas, Plan del Río, Río Rancho Nuevo, Santa Ana, San Lorenzo, Córdoba, and Jalapa, Veracruz; Mexico City; Chihuitán, Amolóya, and Santa Efigenia, Oaxaca).—Ihering and Ihering, Av. Brazil, 1907, 90, part (Mexico part).

BUTEO MAGNIROSTRIS XANTUSI van Rossem

Colima Insect Hawk

Adult (sexes alike).—Similar to that of *Buteo magnirostris griseocauda* but darker above and below, much less rufescent below, and almost completely lacks the reddish from the inner webs of the remiges. Above dark hair brown to dusky olive brown; breast dark hair brown tinged olive-brown; transverse bars on upper abdomen and sides Saccardo's umber, the ground color more whitish, less tinged with buffy, than in *griseocauda*.

Juvenal (sexes alike).—Like that of *Buteo magnirostris griseocauda* but darker, less rufescent below; the upperparts slightly darker, the pectoral streaks dark clove brown to almost fuscous, the ground color of the underparts less buffy, more whitish.

Natal down.—Not described.

Adult male.—Wing 227–249 (235.3); tail 163–174.5 (167.7); culmen from cere 19–20.8 (19.6); tarsus 67–69.1 (68); middle toe without claw 29–33 (31.3 mm.) (3 specimens, including the type).

Adult female.—Wing 235–248 (242.5); tail 170–177.5 (174.4); culmen from cere 16.5–20 (19.1); tarsus 64.5–67.5 (63.6); middle toe without claw 32–34.7 (33.3 mm.) (4 specimens).

Range.—Resident from Colima (Río Armeria and Manzanillo) to Guerrero (Acapulco, La Lagunella, and Papayo) and to Puerto Ángel, Oaxaca.

Type locality.—Río Armeria, Colima, Mexico.

Asturina ruficauda (not of Sclater and Salvin, 1869) Salvin, Proc. Zool. Soc. London, 1863, 426 (Acapulco, Guerrero).—Sclater and Salvin, Nom. Av. Neotr., 1873, 118, part (Mexico, part).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 205, part (s. Mexico).—Salvin, Proc. Zool. Soc. London, 1883, 426 (Guerrero).

Rupornis ruficauda Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 76, part (Tacolapa, Guerrero; Acapulco, Guerrero).

Buteo (*Rupornis*) *magnirostris* c. var. *griseocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 88, part (Colima).

Buteo (*Rupornis*) *magnirostris* var. *griseocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 87, part (descr.).

Rupornis griseicauda Sharpe, Hand-list, i, 1899, 258, part.

Rupornis magnirostris griseicauda Swann, Synopt. List. Accip., pt. 2, 1919, 55, part; Synop. Accip., ed. 2, 1922, 92, part; Monogr. Birds Prey, i, 1930, 440, part (monogr.).

Butco magnirostris xantusi van Rossem, Ann. Mag. Nat. Hist., 1939, ser. 11, vol. 9, 440 (Rio Armenia, Colima, Mexico; orig. descr.; crit.; meas.).—Davis, Condor, xlvi, 1944, 10 (Guerrero, Mexico; spec.).

BUTEO MAGNIROSTRIS CONSPECTUS (Peters)

Yucatán Insect Hawk

Adult (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but averaging slightly smaller; paler and purer gray (less brownish) above; slightly paler below.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but upperparts paler, drab to pale hair brown, as against fuscous to olive-brown in *griseocauda*, and averaging slightly smaller.

Natal down.—Not known.

Adult male.—Wing 219–226 (222.5); tail 155–171.5 (162.4); culmen from cere 17.8–20 (18.6); tarsus 62.8–67.5 (63.3); middle toe without claw 29.9–34.5 (31.6 mm.) (4 specimens).

Adult female.—Wing 220–237 (229.7); tail 155.5–165.9 (160.9); culmen from cere 17.6–20.5 (19.2); tarsus 63–65.7 (64.4); middle toe without claw 33.4–35 (34.4 mm.) (8 specimens).

Range.—Resident in the Yucatán Peninsula (San Ignacio, Chichen Itzá, Río Lagartos, Quintana Roo, Ycopen, Chunyaxché), and Tabasco (Frontera, Monteeristo), and Campeche to northern British Honduras.

Type locality.—San Ignacio, Yucatán.

Asturina magnirostris (not *Falco magnirostris* Gmelin) Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 207 (Mérida, Yucatán).

Asturina ruficauda (not of Sclater and Salvin, 1869) Boucard, Proc. Zool. Soc. London, 1883, 456 (Yucatán).

Rupornis ruficauda Stone, Proc. Acad. Nat. Sci. Philadelphia, 1890, 204 (common, Izamal, Yucatán).—Chapman, Bull. Amer. Mus. Nat. Hist., viii, 1896, 286 (Chichen Itzá, Yucatán).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76 part (Yucatán).

Rupornis ruficauda griseicauda Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 94, in text, part (Yucatán).—Cole, Bull. Mus. Comp. Zool., l, 1906, 121 (Chichen Itzá).

Asturina magnirostris var. *griseocauda* Rovirosa, La Naturaleza, vii, 1887, 375 (Tabasco).

Rupornis magnirostris conspecta Peters, Auk, xxx, 1913, 370 (San Ignacio, Yucatán; coll. Mus. Comp. Zool.).—Swann, Synopt. List. Accip., pt. 2, 1919, 56; Synop. Accip., ed. 2, 1922, 92; Monogr. Birds Prey, i, 1930, 440 (monogr.).—Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (c. Quintana Roo, Yucatán).—Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 45 (crit.; characters; distr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 190 (type spec. in Mus. Comp. Zool.).

Buteo magnirostris conspectus Peters, Check-list Birds of World, i, 1931, 237.—Brodkorb, Occ. Pap. Mus. Zool. Univ. Michigan, No. 425, 1940, 3 (spec.; Yucatán: San Ignacio, Chichen Itzá, Río Lagartos; Quintana Roo: Camp Mengel, Xcopen; British Honduras: Cayo, Belize, Toledo District).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 203 (Chichen Itzá; Yucatán; spec.).

Rupornis ruficauda gracilis (not *R. gracilis* Ridgway) Swann, Synop. Accip., ed. 2, 1922, 93, part (Yucatán).

BUTEO MAGNIROSTRIS PETERSI Brodkorb

Tehuantepec Insect Hawk

Adult (sexes alike).—Similar to that of *Buteo magnirostris griseocauda* but less rufescent below, the ground color of the abdomen, sides, thighs, and vent almost pure white, the brown bars on the breast and upper abdomen more distinct, not tending to run together along the shaft; upper breast and throat clearer grayish, as in *Buteo magnirostris conspectus*.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris griseocauda* but differing in the same particulars as do the adults.

Natal down.—Not known.

Adult male.—Wing 223–235 (226); tail 153–166.5 (160.9); culmen from cere 17.5–19.7 (18.3); tarsus 64.9–68.4 (66.5); middle toe without claw 29.5–31.1 (30.1 mm.).[58]

Adult female.—Wing 240–246 (243.2); tail 162–170 (166.9), culmen from cere 18.6–21.6 (20.1), tarsus 65.4–68.6 (66.5); middle toe without claw 29.2–33.8 (31.8 mm.).[59]

Range.—Resident in the arid Pacific slope of the Isthmus of Tehuantepec, southeastern Oaxaca, and in adjacent southwestern Chiapas (Arriaga, Tonalá, Pijijiapan).

Type locality.—Above Arriaga, Chiapas.

Asturina ruficauda Sclater and Salvin, Nom. Av. Neotr., 1873, 118, part (Mexico).

Rupornis ruficauda Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part (Tehuantepec).

Buteo (*Rupornis*) *magnirostris* c. var. *griseocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 65, part (Tehuantepec, Oaxaca), 88, part (syn.; distr.).

Buteo (*Rupornis*) *magnirostris* var. *griseocauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 87, part (descr.).

Buteo magnirostris griseocauda Peters, Check-list Birds of World, i, 1931, 237, part.

Rupornis griseicauda Sharpe, Hand-list, i, 1899, 258, part.

Rupornis magnirostris griseicauda Swann, Synopt. List Accip., pt. 2, 1919, 55, part; Synop. Accip., ed. 2, 1922, 92, part; Monogr. Birds Prey, i, 1930, 440,

[58] Seven specimens from Chiapas; Tonalá, Pijijiapan, Arriaga, and Tehuantepec City, Oaxaca.

[59] Four specimens from Chiapas: Tonalá, Pijijiapan, Arriaga, and Tehuantepec City, Oaxaca.

part (monogr.).—Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 44, part (crit.; Tehuantepec).

Rupornis magnirostris griseocauda Bangs, Bull. Mus. Comp. Zool., lxx, No. 4, 1930, 190 (Tehuantepec).

Buteo magnirostris petersi Brodkorb, Occ. Pap. Mus. Zool. Univ. Michigan, No. 425, 1940, 2 (above Arriaga, Chiapas, alt. 100 meters; crit.; orig. descr.).

Rupornis magnirostris subsp. del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas; Escuintla; spec.).

BUTEO MAGNIROSTRIS GRACILIS (Ridgway)

Cozumel Insect Hawk

Adult (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but decidedly smaller, and with the thighs and under wing coverts wholly or nearly immaculate, instead of distinctly barred or spotted; the breast with the lateral buffy margins of the feathers wider; the posterior underparts less washed with cinnamomeous.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but smaller, very slightly paler above; the spots on the feathers of the upper abdomen not forming transverse bars; the thighs not barred, only sparsely spotted with cinnamomeous.

Natal down.—Not known.

Adult male.—Wing 200–205 (203); tail 143.8–150.5 (146.5); culmen from cere 17–18 (17.6); tarsus 58.2–59.5 (58.8); middle toe without claw 27.5–28.2 (27.9 mm.) (4 specimens).

Adult female.—Wing 210–218 (216.2); tail 152.1–159 (153.9); culmen from cere 17.7–19 (18.4); tarsus 58–60.8 (59.6); middle toe without claw 29–30.7 (29.6 mm.) (5 specimens).

Range.—Resident on the Islands of Cozumel, Meco, Holbox, and probably on Mugeres Island, Yucatán.

Type locality.—Cozumel Island, Yucatán.

Asturina ruficauda (not of Sclater and Salvin, 1869) Salvin, Ibis, 1885, 193 (Meco, Holbox, and Cozumel Islands); 1889, 374, part (Cozumel Island; crit.).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part (Cozumel Island).

Rupornis ruficauda Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part.

Rupornis gracilis Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 94 (Cozumel Island, off Yucatán; coll. U. S. Nat. Mus.).—Gurney, Cat. Birds Prey, 1894, 25.—Sharpe, Hand-list, i, 1899, 257.

Rupornis magnirostris gracilis Ridgway, Proc. U. S. Nat. Mus., viii, 1885, 578 (Cozumel; full descr.; crit.).—Swann, Synopt. List Accip., pt. 2, 1919, 56; Synopsis Accip., ed. 2, 1922, 93, part (Cozumel); Monogr. Birds Prey, i, 1930, 440 (monogr.).—Griscom, Amer. Mus. Nov., No. 236, 1926, 8 (Cozumel Island).—Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 45 (crit.; chars.; distr.).

Buteo magnirostris gracilis Peters, Check-list Birds of World, i, 1931, 237.—Brodkorb, Occ. Pap. Mus. Zool. Univ. Michigan, No. 425, 1940, 4 (spec.; Cozumel Island).

BUTEO MAGNIROSTRIS DIREPTOR (Peters and Griscom)

GUATEMALAN INSECT HAWK

Adult (sexes alike).—Similar to that of *Buteo magnirostris griseocauda* in the color of the upperparts, but the pale interspaces of the basal half or third of the rectrices washed with cinnamon-rufous; the breast darker, the margin of the feathers less buffy, more cinnamomeous, the light bars on the posterior underparts averaging narrower, iris bright lemon-yellow; cere, edge of gape, tarsi, and feet waxy lemon yellow varying to orange-yellow; bill black usually plumbeous toward the base; claws black.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but with the pale interspaces of the rectrices washed with cinnamon rufous, the abdomen barred with rufescent, the crown concolorous with the back; iris orange-brown gradually lightening to orange-yellow when 8 or 9 months old; tarsi, feet, cere, etc., duller and more greenish than in adults.

Natal down.—Not known.

Adult male.—Wing 217–238 (225.6); tail 158–168.5 (165.2); culmen from cere 18–20 (19.5); tarsus 66–68.9 (66.5); middle toe without claw 30–32.5 (31.5 mm.) (3 specimens).

Adult female.—Wing 231–242 (235.4); tail 169–175 (172.5); culmen from cere 16.5–19 (18); tarsus 63–66 (64.8); middle toe without claw 28.5–32 (30.5 mm.) (3 specimens).

Range.—Resident in eastern Chiapas (Finca Esperanza, Acacoyagua, Barra de Cahuacán, Huehuetán), Guatemala (Puebla, Hacienda Carolina, Ocos, Hacienda California, Finca El Ciprés, Puerto Barrios, Santo Toribio, Telemán, Polochic Valley, Los Amates, etc.), except perhaps the extreme northeastern part (northern Petén), El Salvador (La Libertad, Lake Olomega, Lake Guija, Río San Miguel, Río Goascorán, Puerto del Triunfo, Divisadero, San Sebastián, Barra de Santiago, Sonsonate, Hacienda Zapotitlán), southwestern British Honduras (Toledo district), and the Pacific slope of Honduras (Tegucigalpa, Monte Redondo, Comayagua, in the forests and semi-wooded areas below 1,500 feet, usually near water).

Type locality.—Finca El Ciprés, near Mazatenango, Pacific slope, Guatemala.

Asturina magnirostris (not *Falco magnirostris* Gmelin) SCLATER and SALVIN, Ibis, 1859, 217 (Guatemala; food).—BOUCARD, Liste Ois. Récol. Guat., 1878, 19 (Guatemala).

Asturina ruficauda SCLATER and SALVIN, Proc. Zool. Soc. London, 1869, 133, part (Guatemala); Nom. Av. Neotr., 1873, 118, part (Central America, part).—GURNEY, List Diurn. Birds Prey, 1884, 72, part (crit.); Cat. Birds Prey, 1894, 25, part.

Rupornis ruficauda SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1900, 77, part (Santo Toribio, Petén; Teleman, Polochic Valley; Chimalapa, Motagua

Valley; Savana Grande, Escuintla; between San Antonio and Paramos (6,000 feet); Sierra de la Minas, Guatemala; La Libertad, El Salvador).

Rupornis ruficauda griseocauda Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 82 (Los Amates and San José, Guatemala).

Rupornis magnirostris griseicauda Swann, Synopt. List Accip., 1919, 55, part; Synop. Accip., 1922, 92, part; Monogr. Birds Prey, i, 1930, 440, part (Guatemala).

Rupornis magnirostris direptor Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 46 (orig. descr.; crit.; chars.; distr.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 156 (distr.; Guatemala: Hacienda Carolina, Hacienda California, Finca el Cipres, Ocos, Virginia Plantation near Puerto Barrios); Ibis, 1935, 810, in text (Guatemala; Sierra de las Minas; spec.).

Buteo magnirostris direptor Peters, Check-list Birds of World, i, 1931, 237.—Carriker and de Schauensee, Proc. Acad. Nat. Sci. Philadelphia, lxxxviii, 1935, 415 (Guatemala; Quirigua; spec.).—van Tyne, Misc. Publ. Mus. Zool., Univ. Michigan, No. 27, 1935, 16 (Petén, Guatemala; spec.; meas.).—Brodkorb, Occ. Pap. Mus. Zool., Univ. Michigan, No. 425, 1940, 4 (specs.; Chiapas, Guatemala, El Salvador, Honduras).

BUTEO MAGNIROSTRIS ARGUTUS (Peters and Griscom)

Nicaraguan Insect Hawk

Adult (sexes alike).—Similar to that of *Buteo magnirostris direptor*, but paler above, the crown purer gray, clearly defined from the darker grayish brown back; the breast more extensively washed with paler grayish and the buffy margins of the feathers less distinct; size smaller.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris direptor*, but smaller.

Natal down.—Not known.

Adult male.—Wing 213–220 (216.2); tail 159.4–163.5 (161.1); culmen from cere 17.4–18.1 (17.6); tarsus 61.5–68.7 (64.5); middle toe without claw 28.5–32.4 (30.2 mm.) (5 specimens).

Adult female.—Wing 221–240 (232.5); tail 155.8–173 (162.9); culmen from cere 18.7–20 (19.4); tarsus 62–68.4 (66.6); middle toe without claw 32.5–34.7 (33.4 mm.) (8 specimens).

Range.—Resident in Central America from eastern Honduras (Omoa, Ulúa Valley, Toloa Lagoon, Tela, Lancetilla, Truxillo, Ruatan and Bonacca Islands, Río Segovia) south on the Caribbean slope across Nicaragua (Cape Gracias a Dios, Río Escondido, Ometepe Island, San Emilio, Volcán de Chinandega, etc.) and Costa Rica (Cerro Santa María, Tenorio, Azahar de Cartago, Turrialba, Talamanca, etc.) to the Chiriquí district of Panama (Almirante, Changuinola, Chiriquicito, Cricamola), and from the Honduras-Nicaragua boundary southward on the Pacific slope to northwestern Costa Rica (San José).

Type of locality.—Almirante, Panama.

Asturina magnirostris (not *Falco magnirostris* Gmelin) Moore, Proc. Zool. Soc. London, 1859, 52 (Omoa, Honduras).—Taylor, Ibis, 1860, 225 (Atlantic

slope, Honduras).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 134, part (Turrialba, Costa Rica).—Frantzius, Journ. für Orn., xvii, 1869, 369, part (Costa Rica, part).—Gray, Hand-list, i, 1869, 30, No. 286, part (Costa Rica, part).

Asturina ruficauda Sclater and Salvin, Exotic Orn., 1869, 175, part (Costa Rica); Proc. Zool. Soc. London, 1869, 133, part (Omoa, Honduras); 1870, 838 (coast of Honduras); Nom. Av. Neotr., 1873, 118, part (Central America, part).—Salvin, Ibis, 1869, 317 (Costa Rica); 1889, 374, part (Ruatan and Bonacca Islands, Honduras).—Gurney, List. Diurn. Birds Prey, 1884, 72 part (crit.); Cat. Birds Prey, 1894, 25, part.—Sharpe, Handlist, i 1899, 257, in part (s. Nicaragua).

Buteo (*Rupornis*) *magnirostris d.* var. *ruficauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 65 part (Costa Rica, part), 89, part (synonymy; descr.).

Rupornis magnirostris ruficauda Zeledón, Cat. Aves Costa Rica, 1882, 27, in part; Proc. U. S. Nat. Mus., viii, 1885, 112, in part (Costa Rica, part).—Swann, Synopt. List Accip., pt. 2, 1919, 56, part; Synop. Accip., ed. 2, 1922, 93, part (s. Nicaragua).

Rupornis ruficauda Gurney, Ibis, 1876, 482 in text, part (crit.).—Ridgway, Proc. U. S. Nat. Mus., x, 1888, 583 (Truxillo, Honduras).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 521 (Río Escondido, Nicaragua).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part (Omoa, San Pedro, Truxillo, and Río Segovia, Honduras; San Juan del Sur, Sucuyá, Ometepe Island; San Emilio, Lake Nicaragua, Volcán de Chinandega, and Río Escondido, Nicaragua; Turrialba, Volcán de Irazú, Talamanca, Costa Rica).—Carriker, Ann. Carnegie Mus., vi, 1910, 459, in part (rare in Caribbean lowlands of Costa Rica).

Rupornis magnirostris arguta Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 46 (crit.; characters; distr.; orig. descr.).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 417 (Tela, Honduras; habits).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 190 (type spec. in Mus. Comp. Zool.).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 212 (ne. Nicaragua; spec.; colors).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 299 (Honduras, Cantarranas, Tela, Puerto Castilla, Omoa, Truxilla, Segovia River, Comayagua, San Pedro, Ruatan Island).

Buteo magnirostris argutus Peters, Check-list Birds of World, i, 1931, 237.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (Caribbean slope of w. Panama).—Sassi, Temminckia, iii, 1938, 298 (Costa Rica, Waldeck, Bebedero, 9 specs.; crit.).

BUTEO MAGNIROSTRIS SINUS-HONDURI Bond

BONACCA INSECT HAWK

Adult.—Similar to that of *B. m. griseocauda*, but darker, especially above. "Pileum and hind neck blackish; remainder of upper parts dusky grayish brown, the rectrices gray, barred with black; basal portion of inner webs of primaries white to light rufous, barred with black; sides of head and malar region grayish brown; chin and throat white, indistinctly washed with buffy, with conspicuous blackish shaft-streaks; upper breast dusky grayish brown, the feathers with indistinct paler tips; lower breast white, heavily barred with dull grayish brown, the bars more or less rufous medially and the feathers tipped with buff;

thighs ochraceous, narrowly barred with blackish; flanks buffy ochraceous, barred with dusky; under tail coverts buffy white to ochraceous, marked with a few speckles or spots of dusky." (Original description by Bond.)

Other plumages unknown.

Adult male.—Wing 229; tail 154; culmen from cere 19.25; tarsus 58 mm. (1 specimen).

Adult female.—Wing 231; tail 160; culmen from cere 20; tarsus 59 mm. (1 specimen).

Range.—Resident on the Bay Islands of Spanish Honduras (Bonacca, Ruatan; not known from Utila).

Type locality.—Bonacca Island, Spanish Honduras.

Asturina ruficauda Salvin, Ibis, 1889, 374, in part (Ruatan and Bonacca Islands).

Rupornis ruficauda Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 76, part (Bonacca and Ruatan Islands).

Buteo magnirostris sinus-honduri Bond, Proc. Acad. Nat. Sci. Philadelphia, lxxxviii, 1936, 355 (Bonacca Island, Spanish Honduras; descr.; crit.).—Anonymous, Auk, liii, 1936, 469, in text.

BUTEO MAGNIROSTRIS PETULANS van Rossem

Rufous-tailed Insect Hawk

Adult (sexes alike).—Similar to *Buteo magnirostris griseocauda*, but paler above and grayer, less brownish, the back decidedly grayish rather than brownish; the pale interspaces of the rectrices entirely cinnamon-rufous; the breast nearly uniform pale gray sometimes washed slightly with hair brown or drab, the under wing coverts indefinitely barred with cinnamomeous.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris griseocauda*, but with the pale interspaces on the rectrices entirely cinnamon-rufous, and with the abdomen streaked with cinnamon rufous.

Natal down.—Not known.

Adult male.—Wing 205–214 (209.8); tail 150–155 (152.6); culmen from cere 18–18.5 (18.3); tarsus 58–60.5 (59.6); middle toe without claw 29–29.8 (29.5 mm.) (4 specimens).

Adult female.—Wing 217–234 (224.6); tail 161.5–170.5 (163.8); culmen from cere 18–19.5 (18.6); tarsus 65–67 (66); middle toe without claw 31–34 (33.1 mm.) (7 specimens).

Range.—Resident in the Pacific slope of Central America from the head of the Gulf of Nicoya, Costa Rica, through western Costa Rica (Bolson, Boruca, El General) to the mouth of the Tuyra River, eastern Panama (Divalá, David, Bogaba, Boquete, Canal Zone).

Type locality.—Veraguas.

Asturina magnirostris (not *Falco magnirostis* Gmelin) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 316 (Panama); viii, 1865, 178 (Davíd, Chiri-

quí, Panama); ix, 1868, 134, part (Juan [Viñas?], San José, Costa Rica).—Salvin, Proc. Zool. Soc. London, 1867, 158 (Davíd, Chiriquí, Panama).—Frantzius, Journ. für Orn., 1869, 369, in part (Costa Rica, part).

Astur magnirostris Gray, Hand-list, i, 1869, 30, No. 286, part (Costa Rica, part).

Asturina ruficauda Sclater and Salvin (not *Accipter ruficaudus* Vieillot, 1807), Proc. Zool. Soc. London, 1869, 133, part (Davíd, Chiriquí, Panama, coll. Salvin and Godman); Exotic Orn., pt. 11, 1869, pl. 88; Nom. Av. Neotr., 1873, 118, part (Panama; Central America, part).—Salvin, Proc. Zool. Soc. London, 1870, 215 (Calovébora and Bugaba, Veraguas, Panama).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 205, part (Chiriquí), 458 (Panama); Hand-list, i, 1899, 257, part (Panama).—Gurney, List. Diurn. Birds Prey, 1884, 72, part (crit.); Cat. Birds Prey, 1894, 25, part.—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico).—van Rossem, Condor, xxxvii, 1935, 215, in text.

Buteo (*Rupornis*) *magnirostris* var. *ruficauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 87 (diagnosis).

Buteo (*Rupornis*) *magnirostris d.* var. *ruficauda* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 65, part (Costa Rica, part), 89, part (syn.; descr.).

Rupornis ruficauda Gurney, Ibis, 1876, 482, in text, part (crit.).—Ridgway, Proc. U. S. Nat. Mus., v, 1882, 403 (La Palma de Nicoya, Costa Rica).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Liberia, San Mateo, and La Palma de San José, Costa Rica).—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 51 (Boruca and Buenos Aires, Costa Rica).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 76, part (Tonalá, Río Seco, and Tuxtla, Chiapas?; Teapa, Tabasco?; San José, San Mateo, Liberia, La Palma de Nicoya, San Lucas, Alajuela, San Isidro, Santa Ana, Guaitíl, Bebedero, and Volcán de Miravalles, Costa Rica; Davíd in Chiriquí, Bugaba and Calovebora in Veraguas, Lion Hill, Paraiso Station, Panama).—Thayer and Bangs, Bull Mus. Comp. Zool., xlvi, 1905, 214 (Savana de Panamá).—Carriker, Ann. Carnegie Mus., vi, 1910, 459, part (Guayabo, Pigres, Bonailla, Bolsón, Cerro de Santa María, Tenório, El General de Terraba, Pozo Azúl de Pirrio, La Hondura, Bebedero, El Pozo de Térraba, Buenos Aires de Terraba, and Miravalles, Costa Rica; habits; range, etc.).—Hallinan, Auk, xli, 1924, 311 (Culebra-Arraijan Trail, Panama; food).

Rupornis magnirostris ruficauda Zeledón, Cat. Aves. Costa Rica, 1882, 27, in part; Proc. U. S. Nat. Mus., viii, 1885, 112, in part (Costa Rica, part).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Gatun, Panama, Canal Zone; spec.).—Swann, Synopt. List Accip., pt. 2, 1919, 56, in part; Synop. Accip., ed. 2, 1922, 93, part (s. Nicaragua to Panama).—Bangs and Barbour, Bull. Mus. Comp. Zool., lxv, 1922, 194 (Jesusito, Darién).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 449 (Almirante and Chiriquicito, Panama; very common at lower altitudes; colors of soft parts; spec.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 134 (descr.; habits; Panama).—Peters and Griscom, Proc. New England Zool. Club, xi, 1929, 47 (crit.; chars.; distr.).—Swann, Monogr. Birds Prey, i, 1930, 441 (monogr.).

Buteo magnirostris ruficauda Peters, Check-list Birds of World, i, 1931, 238.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (Panama, whole Pacific slope; only 1 record from Darién).—van Rossem, Condor, xxxvii, 1935, 215, in text.—Trimble, Ann. Carnegie Mus., xxix, 1943, 421 (Capira, Panama).

Buteo magnirostris ruficaudus Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 43 (Paracote, Azuero Peninsula, Panama; spec.).

Buteo magnirostris petulans VAN ROSSEM, Condor, xxxvii, 1935, 215 (new name for *B. m. ruficauda*, not *Accipiter ruficaudus* Vieillot, 1807).—SASSI, Temminckia, iii. 1938, 298 (Costa Rica; Río Tigre at Puerto Jiménez; spec.; crit.).

BUTEO MAGNIROSTRIS ALIUS (Peters and Griscom)

SAN MIGUEL INSECT HAWK

Adult (sexes alike).—Similar to that of *Buteo magnirostris petulans*, but the rufous color of the wings and tail paler, that of the latter washed with grayish; feathers of the breast with two incomplete white bars, producing a spotted appearance; barring of the abdomen coarser and slightly darker; the longest under wing coverts unspotted or with only a faint subterminal spot; averaging very slightly smaller.

Juvenal.—Unknown.

Natal down.—Unknown.

Adult male.—Wing 207; tail 142; culmen from cere 19; tarsus 69; middle toe without claw 33 mm. (1 specimen).

Adult female.—Wing 219–226 (221.3); tail 159–163 (160.7); culmen from cere 20–20.5 (20.2); tarsus 68–70 (69); middle toe without claw 32.5–33 (32.7 mm.) (3 specimens).

Range.—Resident and wholly confined to El Rey, Pearl Islands, Bay of Panama; absent from the smaller islands of the group.

Type locality.—El Rey, Pearl Islands.

Asturina ruficauda SHARPE, Cat. Birds Brit. Mus., i, 1874, 205, part (Pearl Islands, Bay of Panama).

Rupornis ruficauda SALVIN and GODMAN, Biol. Centr. Amer., Aves, iii, 1900, 76, part (Pearl Islands, Panama).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (San Miguel Island, Bay of Panama).

Rupornis magnirostris alia PETERS and GRISCOM, Proc. New England Zool. Club, xi, 1929, 48 (crit.; characters; distr.; orig. descr.).—BANGS, Bull. Mus. Comp. Zool., lxx, 1930, 190 (type specimen in Mus. Comp. Zool.).

Buteo magnirostris alius PETERS, Check-list Birds of World, i, 1931, 238.—GRISCOM, Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (El Rey Island, Pearl Islands, Panama).—MURPHY, Auk, lxii, 1945, 116 (Pearl Islands, Panama).—WETMORE, Smiths. Misc. Coll., cvi, No. 1, 1946, 27 (San José, Pearl Islands, Panama).

BUTEO MAGNIROSTRIS INSIDIATRIX (Bangs and Penard)

SANTA MARTA INSECT HAWK

Adult (sexes alike).—Similar to that of *Buteo magnirostris petulans* in the coloration of the upperparts, but averaging paler, pale drab gray to neutral gray, but the pale interspaces of the tail pure gray without a trace of rufous; throat and breast uniform pale gray; the posterior underparts and tibiae barred as in *petulans*, but with no or only a very faint rufous wash.

Juvenal (sexes alike).—Similar to that of *Buteo magnirostris petulans*, but paler gray above; less washed with rufous on the posterior underparts; pale interspaces of the rectrices gray, not rufous.

Natal down.—Not known.

Adult male.—Wing 204–211 (208.3); tail 143–156 (148); culmen from cere 18–19 (18.5); tarsus 60–63 (61); middle toe without claw 28.5–31.5 (29.7 mm.) (3 specimens from Colombia and Panama).

Adult female.—Wing 215–220 (217.5); tail 145–155 (148.2); culmen from cere 19–20 (19.5); tarsus 60–63.5 (61.6); middle toe without claw 29.5–33 (31.7 mm.) (4 specimens from Colombia and Panama).

Range.—Resident from the Caribbean slope of extreme eastern Panama (Permé and Chucunaque River) to northern Colombia (Atrato River) and the Santa Marta district of Colombia (Bonda, Mamatoco, Don Diego, Puerto Caimán, Tierra Nueva, Minca, Fundación, Dibulla, etc.), possibly to northwestern Venezuela.[60]

Type locality.—Santa Marta Mountains, Colombia.

Asturina magnirostris (not *Falco magnirostris* Gmelin) Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1860, 132 (Turbo, nw. Colombia).—Wyatt, Ibis, 1871, 382 (La Cruz, Colombia); Salvin and Godman, Ibis, 1880, 176 (Sierra Nevada de Santa Marta, Santa Marta, and Minca, 2,000 feet, Colombia; habits).—Berlepsch, Journ. für Orn., 1884, 316 (Los Monos, Colombia).

Rupornis magnirostris Bangs, Proc. Biol. Soc. Washington, xii, 1898, 132 (Santa Marta, Colombia).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1899, 304 (Honda and Ibague, c. Colombia).—Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 129 (Bonda, Santa Marta, Colombia).—Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 168 (La Guaira and San Julián, Venezuela).

Rupornis magnirostris magnirostris Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 243, part (Atrato River, Puerto Valdivia, Honda, and Río Frío, Colombia; crit.).—Swann, Auk, xxxviii, 1921, 362 (Valle, Culata, and Escorial, Venezuela).

Buteo magnirostris magnirostris Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 185, part (Valle, Merida, Maracay, Venezuela).

Rupornis magnirostris insidiatrix Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 36 (Sierra de Santa Marta, Colombia; coll. Mus. Comp. Zool.).—Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., ed. 2, 1922, 92, part (Colombia).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 154 (Bonda, Mamatoco, Don Diego, Puerto Caiman, Tierra Nueva, Minca, Fundación, and Dibulla, Santa Marta. Colombia; crit.).—Peters and Griscom, Proc. New England Zool. Cl., xi, 1929, 48 (crit.; chars.; distr.).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 367 (Río Frio near Santa Marta, Magdelena, Colombia; habits).—Swann, Monogr. Birds Prey, i, 1930, 439 (monogr.).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 185, in text.—Dugand, Rev. Acad. Colomb., iii, 1940, 219 (Magdalena-Caribbean area of Colombia; very common).

Buteo magnirostris insidiatrix Peters, Check-list Birds of World, i, 1931, 238.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Panama); lxxviii, 1935, 299 (Caribbean slope of Panama: Permé and Obaldia).

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[60] The Panamanian specimens (10 seen) are not all typical of this race; some are like topotypical *insidiatrix*, while others show some approach to *petulans*. The race *insidiatrix* merges with *magnirostris* near Puerto Valdivia and Hondo, Colombia, and with *ecuadorensis* near Río Frío, Colombia).

Subgenus BUTEOLA Bonaparte

Small buteonine hawks, with wing usually less than 350 mm. in length, the middle toe without claw longer than the bare frontal portion of the tarsus; the three outer primaries emarginate on their inner webs, the fourth one sinuate; nostrils round, with distinct central tubercle.

Plumage compact and full, coloration black and white; dichromatic.

Range.—Florida, eastern Mexico, south through Central America and South America to Bolivia. (Monotypic.)

BUTEO BRACHYURUS Vieillot

Short-tailed Hawk

Adult (sexes alike).—White-bellied phase: Upper surface continuous and nearly uniform fuscous to blackish brown, darkest and most uniform on the head, which, with the exception of the anterior half of the lores, the anterior malar region, chin, and throat, is solid fuscous-black, the occipital feathers snow white beneath the surface; back with a strong chalky or glaucous cast in certain lights, the scapulars and wings dull grayish brown with the feathers darker centrally; sides of the rump strongly tinged with rufous. Tail grayish brown, very narrowly tipped with dull white; crossed near the end by an indistinct band of dusky, and showing, when widely spread, indications of about four other narrow broken bands, in the form of irregular, but mostly somewhat V-shaped, bars of black along the middle portion of the feathers. Lateral upper tail coverts lighter brownish gray, with broad but rather indistinct bars or spots of dusky. A spot on each side of the base of the bill, covering the anterior half of the loral and malar regions, chin, throat, middle of the jugulum, breast, and remaining lower parts, immaculate pure white, the tibiae, especially on their inner side, washed with pale ochraceous or light buff. Sides of the jugulum rufous-brown, the feathers with dusky shaft streaks; sides of the breast and anterior portion of the sides marked with a few dusky shaft streaks, the more posterior ones of which expand terminally into a broad streak of dusky brown. Lining of the wing and axillars immaculate pure white, the under primary coverts, however, with a large patch of dusky near the end. Bill black, bluish basally; cere, legs, and feet, yellow; iris, brown.

Females average a little less bright rufous on the sides of the breast, but the difference is not constant in the series examined.

Adult (sexes alike).—Melanistic phase: Uniform black or dusky, varying from dark sooty brown to almost a coal black, freshly molted specimens usually having a chalky or glaucous cast on the back, and a more or less distinct purplish reflection to the general plumage;

forehead usually more or less distinctly white, but this sometimes wholly absent; occipital feathers pure white beneath the surface; outer surface of primaries plain black, without the slightest indication of spots or bars. Tail brownish gray, or grayish brown, crossed by about six or seven narrow bands of black, of which the subterminal

FIGURE 21.—*Buteo* (*Buteola*) *brachyurus*.

is much the broadest, the grayish bands becoming gradually narrower toward the base of the tail; under surface of the tail appearing silvery white, with cross bands of slate color. Under surface of the primaries chiefly white anterior to their emargination, but this broken by irregular bars, or, as is sometimes the case, confused mottlings of grayish; rest of under surface of the wing uniform dark brown or black, the

under primary coverts sometimes spotted or barred with white. Bill black, bluish basally; cere and feet yellow; iris brown.

Juvenal (sexes alike).—WHITE-BELLIED PHASE: Similar to the adult, but with the dark upperparts mixed and streaked with whitish or pale ochraceous-buff on the occiput and nape; scapulars with paler brown edges, the margins becoming ochraceous on some feathers; outer surface of primaries uniform fuscous; tail more narrowly banded than in adult—dull grayish brown, with indications, especially at the shaft, of about seven narrow dusky bands, the last of which is much broader than the rest. (These bands scarcely show at all when the tail is closed, except on the middle rectrices.) Tip of tail narrowly and indistinctly pale brownish gray. Forehead and anterior portion of lores immaculate white; sides of head, including superciliary and supra-auricular regions, suborbital region and auriculars, streaked with white and dusky, in nearly equal proportion; sides of neck similarly but more broadly streaked, and slightly mixed on the lower portion with rusty ochraceous. Entire lower parts, from chin to crissum, including the whole lining of the wing, axillars, and greater extent of under surface of remiges (in closed wing), immaculate white, the upper portion of outer side and whole of inner side of tibiae deep creamy buff, or light ochraceous. Tail slightly emarginate when closed, truncate when spread; third and fourth quills longest, the others succeeding in the following order: fifth, second, sixth, seventh, eighth, first, ninth, tenth, the first and eighth being very nearly equal, however. Only three outer primaries with inner webs distinctly emarginated, but fourth showing an appreciable sinuation.

Juvenal (sexes alike).—MELANISTIC PHASE: Very similar to the adult, but tail dull brown with more numerous, narrower, and much less distinct bars of dusky, usually eight or nine in number. Contour feathers (both above and below) with much concealed white on the basal portion of the feathers, the lower parts sometimes slightly varied with white or ochraceous spots and streaks, the axillars and under wing coverts with small round spots of the same, and the under tail coverts spotted with ochraceous.

Natal down.—White (none examined).

Adult male.—Wing 290–298; tail 160.3–162.2; culmen from cere 18.2–19.5; tarsus 58.5, 58.5; middle toe without claw 34.6–35.3 mm.[61]

Adult female.—Wing 300–323 (315.6); tail 163.5–190.5 (179.9); culmen from cere 20.5–21 (20.7); tarsus 59–61.9 (60.6); middle toe without claw 37.5–40.6 (38.9 mm.).[62]

Range.—Resident locally in peninsular Florida: St. Marks and San Mateo south to Chatham Bay, Fort Myers, Miami, and Cape Sable;

[61] Two specimens, one from Florida, one from Mexico.

[62] Five specimens, three from Florida, one from Mexico, one from Nicaragua.

eastern Mexico: Tamaulipas, Veracruz, Yucatán, Michoacán, Oaxaca, Chiapas; Cozumel Island; eastern Guatemala: Cobán; Nicaragua: Escondido River; Costa Rica: Irazú, San Antonio, La Palma, Cartago, San José; Panama: Chiriquí, Veraguas, Gatun, Canal Zone; Colombia; Venezuela; French Guiana: Cayenne; Ecuador: Chimbo; Peru: Amable María, Tinta, La Merced; Brazil: Bahia, Rio de Janeiro, Cantagallo, Taquara, Pará, Matto Grosso; Bolivia: Tilotilo; and northern Argentina: Alto Paraná.

Type locality.—Cayenne.

Buteo brachyurus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 477 ("Natal"; coll. Mus. Nat. Hist. Paris).—Pucheran, Rev. Mag. Zool., ii, 1850, 86 (crit.).—Sclater and Salvin, Proc. Zool. Soc. London, 1869, 600 (Peru).—Salvin, Proc. Zool. Soc. London, 1870, 215 (Calovebora, Veraguas, Panama; crit.).—Ridgway, Proc. Boston Soc. Nat. Hist., xiv, 1873, 67 (Brazil); Bull. Nuttall Orn. Club, vi, 1881, 207 (Palatka, Fla.), 210 (=212) (syn., descr.); vii, 1882, 61; Proc. U. S. Nat. Mus., viii, 1885, 77 (diagn. wing characters), 578 (Cozumel Island, Yucatán; descr. young male); Auk, vii, 1890, 90 (crit. as to supposed identity with *B. fuliginosus* Sclater).—Coues, Check list North American Birds, ed. 2, 1882, Addenda, p. 135, No. 882; Key North Amer. Birds, ed. 2, 1884, 549.— Dwight, Bull. Nuttall Orn. Club. vii, 1882, 184 (Palatka, Fla.; correction of data).—American Ornithologists' Union, Check-list, 1886, No. 344; ed. 2, 1895, 133; ed. 3, 1910, 160; ed. 4, 1931, 68.—Brewster, Auk, iv, 1887, 160 (head of Ten Mile Creek, Brevard County, Fla., Mar. 11, 1886).—Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 267 (type of *Falco albifrons* Maximilian, in coll. Amer. Mus. Nat. Hist.); v, 1893, 142 (Chapada, Mato Grosso, sw. Brazil).—Cory, Auk, vi, 1889, 275 (Charlotte Harbor, Fla.).—Scott, Auk, vi, 1889, 243 (Tarpon Springs, Chatham Bay, Caloosahatchie River, etc., Fla.; presents evidence of identity of *B. brachyurus* and *B. fuliginosus*), 248 (s. and sw. Florida, n. at least to Tarpon Springs); ix, 1892, 212 (Caloosahatchie River, Fla., breeding).—Pennock, Auk, vii, 1890, 56 (St. Marks, Fla., breeding; descr. eggs).—Bendire, Life Hist. North Amer. Birds, i, 1892, 246, pl. 8, fig. 7.—Cherrie, Auk, ix, 1892, 318 (San José, Costa Rica).—Fisher, Hawks and Owls United States, 1893, 83.—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 522 (Rio Escondido, Nicaragua).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 71 (Tamaulipas; Alvarado and Jalapa, Veracruz; Tehuantepec, Oaxaca; Tonalá, Chiapas; Cozumel Island; Cobán, Guatemala; Río Escondido, Nicaragua; San José, Irazú, San Antonio, and La Palma de San José, Costa Rica; Calobre and Calovebora, Panama; Colombia; Venezuela; Amazonia; Brazil; Bolivia; Peru).—Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 214 (Sabana de Panama).—Carriker, Ann. Carnegie Mus., vi, 1910, 458 (Azahar de Cartago, Costa Rica).—Reichenow, Die Vögel, i, 1913, 393.—Phelps, Wils. Bull., xxvi, 1914, 98 (Big Cypress Swamp, Fla., breeding).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 243 (Quindio Pass, Colombia); lv, 1926, 231 (distr.; Ecuador).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 151 (Bonda and Palenque, Santa Marta, Colombia).—Hallinan, Auk, xli, 1924, 311 (Gatun, Panama; food).—Bailey, Birds Florida, 1925, 70, pl. 37 (fig.; distr.; Florida).—Peters, Check-list Birds of World, i, 1931, 239.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Panama); lxxviii, 1935, 299 (scattered records throughout Panama).—

Howell, Florida Bird Life, 1932, 179 (genl.; Florida).—Broun, Auk, lii, 1935, 320, in text (Florida; 3 seen).—Harper, Auk, liii, 1936, 386, in text (distr.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 254 (life hist.).—Sprunt, Auk, lv, 1938, 523, in text (Collier County, Fla.; nesting, 1937); Auk, lvi, 1939, 330, in text (Florida; 4 records nesting).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 112 (Lower Amazonia; Pará and Nazari).—Cottam and Knappen, Auk, lvi, 1939, 150, in text (Orange County, Fla.; spec.; food).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, No. 9, 1942, 526 (Michoacán; Cerro de Tancitaro; spec.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 28 (Mexico: Veracruz, Minatitlan; spec.).—Green, Auk, lxi, 1944, 302 (Florida; rare).—Hill, Auk, lxi, 1944, 230 (meas.).

Asturina brachyura Bonaparte, Rev. Mag. de Zool., vi, 1854, 533.—Strickland, Orn. Syn., i, 1855, 42.—Sclater and Salvin, Ibis, 1859, 218 (Guatemala); Nom. Av. Neotr., 1873, 118.

Astur brachyurus Gray, Hand-list, i, 1869, 30, No. 284.

Buteola brachyura Layard, Ibis, 1873, 394 (Pará, Brazil).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 201 (Guatemala; Brazil); Hand-list, i, 1899, 257.—Cabanis, Journ. für Orn., 1874, 229 (Brazil).—Taczanowski, Proc. Zool. Soc. London, 1874, 552 (Amable María, Peru; crit.); Orn. Pérou, i, 1884, 118.—Gurney, Ibis, 1876, 478, 479, 480, in text (crit.; with special reference to melanistic phase; meas.); List Diurn. Birds Prey, 1884, 71 (crit.), 146, in text (crit. as to identity of *B. fuliginosus* Sclater); Cat. Birds Prey, 1894, 25.—Sclater and Salvin, Nom. Av. Neotr., 1873, 118; Proc. Zool. Soc. London, 1879, 540 (Santa Elena, Colombia), 636 (Tilotilo, Yungas, Bolivia).—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, w. Ecuador).—Berlepsch and Ihering, Zeitschr. Orn., 1885, 168 (Taquara, Rio Grande do Sul, s. Brazil; crit.).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 255 (Brazil).—Salvin, Ibis, 1890, 84 (Cozumel Island).—Beristain and Laurencio, Mem. y Revista Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico; distr.).—Koenigswald, Journ. für Orn., 1896, 380 (São Paulo, s. Brazil).—Ihering, Rev. Mus. Paulista, iii, 1899, 353 (Piricicaba, São Paulo); iv, 1900, 162 (Cantogallo, São Paulo), 270 (measurements of eggs); vi, 1904, 387 (Paraguay).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 42 (La Mercéd, centr. Peru).—Ihering and Ihering, Av. Brazil, 1907, 90 (Rio Grande do Sul; Matto Grosso; Pará; Bahia; São Paulo).—Berlepsch, Nov. Zool., xv, 1908, 291 (Cayenne).—Dabbene, Orn. Argent., 1910, 244 (upper Río Paraná); Bol. Soc. Physis Buenos Aires, i, 1913, 247, 301 (Paraguay; Misiones, Argentina); i, 1914, 301 (Misiones, Argentina).—Brabourne and Chubb, Birds South Amer., i, 1912, 67.—Bertoni, Anal. Soc. Cient. Argentina, lxxv, 1913, 79 (Misiones, Argentina); Fauna Parag., 1913, 42 (upper Río Paraná).—Chubb, Birds Brit. Guiana, i, 1916, 236 (Pará, Brazil; Tilotilo, Yungas, Bolivia).—Oberholser, Auk, xxxv, 1918, 207.—Swann, Synopt. List Accip., pt. 2, 1919, 54; Auk, xxxviii, 1921, 360, in text (Escoriál, Vallé, Monte Sierra, and Culata, Venezuela, 2,500–3,000 meters; crit.); Synop. Accip., ed. 2, 1922, 89.—Brandt, Auk, xli, 1924, 59, in text, pl. 9 (nesting; photos; Lake Istokpoga, Fla.).—Gliesch, Egatea, xv, 1930, 283 (Rio Grande do Sul, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 107 (crit.; distr.; Matto Grosso, Brazil).—Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 311 (Almirante, Western River, Chan-

guinola, Shepherd Island, and Cricamola, Panama).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 155 (distr. Guatemala).—Anonymous, El Hornero, vi, 1935, 188 (distr.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 431 (Argentine records; syn.; distr.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 73 (Brazil; distr.).

Butcola brachyurus Swann, Monogr. Birds Prey, i, 1930, 429 (monogr.).

Falco albifrons Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 187 (e. Brazil; type now in coll. Amer. Mus. Nat. Hist.).

Asturina albifrons Kaup, Isis, 1847, 200 (monogr.), 367, "Taf. der Repr. III, 5" (America); *in* Jardine's Contr. Orn., 1850, 67.—Bonaparte, Consp. Gen. Av., i, 1850, 31.—Sclater, Proc. Zool. Soc. London, 1859, 368 (Jalapa, Veracruz).

Buteo albifrons Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 10 (monogr.); No. 36, livr. 10, 1873, 109.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142.—Pelzeln, Orn. Bras., Abth. 4, 1870, 396.

Buteo melanoleucus (not of Vieillot, 1816) Lesson, Traité d'Orn., 1831, 82.—Pucheran, Rev. Mag. Zool., ii, 1850, 214 (crit.).—Hartlaub, Journ. für Orn., 1855, 419 (crit.).

Asturina diadema Kaup, Rev. et Mag. Zool., 1850, p. 489.

Buteo fuliginosus Sclater, Proc. Zool. Soc. London, 1858, 356 (Tamaulipas, ne. Mexico; coll. Norwich Mus.); Trans. Zool. Soc. London, iv, 1858, 367, pl. 62; Ann. Mag. Nat. Hist., ser. 3, iii, 1859, 78 (reprint of orig. descr.).—Salvin and Sclater, Ibis, 1860, 401 (Guatemala).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1860 ed., Atlas, pl. 15, fig. 1 (Mazatlán, Sinaloa).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (La Palma de San José, Costa Rica).—Franztius, Journ. für Orn., 1869, 368 (Costa Rica).—Gray, Hand-list, i, 1869, 7, No. 51.—Gurney, Ibis, 1876, 477, 479, in text (crit.; measurements); 1889, 397 (crit.).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142; Forest and Stream, xvi, 1881, 206 (Oyster Bay, Fla.); Bull. Nuttall Orn. Club, vi, 1881, 207 (=209) (crit.); vii, 1882, 61; Man. North Amer. Birds, 1887, 235; Auk, vii, 1890, 90 (crit. as to supposed identity with *B. brachyurus* Vieillot).—Coues, Check List North Amer. Birds, 2d ed., 1882, Addenda, p. 136, No. 883.—American Ornithologists' Union, Check-list, 1886, 353 (Hypothetical List, No. 15).—Scott, Auk, v, 1888, 185 (near Cape Romano, Fla., Dec. 15, 1886); vi, 1889, 243 (Tarpon Springs, Chatham Bay, Caloosahatchie River, etc., Fla.; presents evidence of identity with *B. brachyurus* Vieillot).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1888, 126 (Costa Rica).

Buteola fuliginosus[63] Ridgway, Bull. Nuttall Orn. Club, vi, 1881, 212 (syn., descr.).

Buteola fuliginosa Sharpe, Hand-list, i, 1899, 257.—Brabourne and Chubb, Birds South Amer., i, 1912, 67.

Buteo minutus Pelzeln, Sitzb. Akad. Wiss. Wien, xliv, 1862, 14; Verh. Zool.-bot. Wien, 1862, 141; Reis. Novara, Vög., 1865, 16; Orn. Bras., Abth. 1, 1868, 3 (Pará; Matto Grosso, Brazil); Abth. 4, 1870, 396.—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 42 (Tehuantepec City, Oaxaca; fresh colors of unfeathered parts).—Zeledón, Cat. Aves Costa Rica, 1882, 27.

Buteola minuta Giebel, Thes. Orn., i, 1875, 517.

Elanus amauroleucus Bertoni, Aves Nuevas Paraguay, 1901, 166 (Alto Paraná).

[63] Lapsus penna.

(?) *Buteo abbreviatus minima* SWANN, Synopt. List Accip., pt. 2, 1919, 51 (Miritiba, Brazil; coll. H. K. Swann); Auk, xxxviii, 1921, 360, in text (crit.).[64]

Subgenus ASTURINA Vieillot

Asturina VIEILLOT, Analyse, 1816, 24. (Type by monotypy, "*Asturia*" *cinerea* Vieillot = *Falco nitidus* Latham.)
Asturia (emendation) VIEILLOT, Analyse, 1816, 68.
Asturisca (emendation) SUNDEVALL, Met. Nat. Av. Disp. Tent., ii, 1873, 107.

Rather small short-winged Buteones (wing about 241–298 mm.) with middle toe more than half as long as tarsus, the latter with more than upper third feathered in front; loral region rather densely covered with short, bristle-tipped feathers; maxillary tomium distinctly lobed, and adults gray (with or without paler bars) above, the tail black banded with white, the underparts barred with gray and white.

Bill moderate in size, its depth at base of culmen equal to about two-thirds the length of culmen and about one-third greater than its width at same point; culmen regularly decurved from base, the tip of maxilla produced into a rather long unguis, not from prolongation of the latter, but from excision of anterior portion of the tomium; gonys about half as long as culmen or slightly more, slightly convex, moderately ascending terminally; maxillary tomium strongly convex behind the anterior deep concavity; rictus slightly but decidedly anterior to anterior angle of eye; cere rather broad on top, its upper outline slightly but distinctly arched, its length on top equal to about three-fifths the length of culmen, its anterior outline rather deeply concave at base of culmen, rather regularly convex laterally, in front of nostril; nostril rather large, obliquely oval. Wing relatively rather short, the longest primary exceeding distal secondary by less than one-third the length of wing; third or fourth primary longest, the fifth but little shorter, the second longer than sixth, the first slightly shorter than tenth; four outer primaries with inner webs emarginated. Tail about three-fifths as long as wing, its tip truncately rounded or very slightly emarginate. Tarsus much more than one-fourth (but less than one-third) as long as wing, about half as long as tail, stout, the upper part feathered in front for more than one-third its length, the acrotarsium and planta tarsi each with a single series of broad, transverse scutella; middle toe more than half as long as tarsus; outer toe extending to much beyond middle of third phalanx of middle toe, the inner toe

[64] The fact that Swann at first thought this bird to be a small form of *B. albonotatus* and so named it, but later became convinced that it is, from its small size, a melanistic example of "*Buteola*" *brachyura* and not a small form of *B* [*uteo*] *abbreviatus* is sufficient evidence that the so-called genus *Buteola* is not worthy of recognition. As to *specific* characters, however, there should never be the slightest difficulty in distinguishing one of these species from the other.

much shorter, but extending to beyond base of third phalanx of middle toe; hallux slightly shorter than inner toe, its claw decidely longer than the digit; claws moderate in size and curvature, broadly grooved beneath, distinctly graduated in size, that of hallux less than twice as long as that of outer toe; web between basal phalanges of outer and middle toe distinct.

Plumage and coloration.—Plumage soft, with feathers distinctly outlined (less so on underparts); loral region rather densely covered with small, short, downy feathers with bristly tips; the feathers on outer side of thighs much larger than those on inner side, but not forming a conspicuous pantalette. Adults gray above, sometimes barred with paler, the tail black crossed by two or three bands (sometimes interrupted) of white; beneath barred with gray and white, the under tail coverts immaculate white. Young blackish brown above variegated with ochraceous or buffy, the tail grayish brown narrowly banded with black; underparts white, more or less tinged with buff, longitudinal markings of blackish; the thighs narrowly barred with the same.

Range.—Tropical and subtropical continental America, from southwestern border of United States to Bolivia and southeastern Brazil. (Monotypic.)

BUTEO NITIDUS PLAGIATUS (Schlegel)

Mexican Gray Hawk

Adult male.—Above deep, rather dark ash gray or slate-gray, becoming paler and narrow on the head above, where the feathers have the shaft streaks black; wings with obsolete lighter bars; rump almost black; upper tail coverts immaculate pure white, tail deep black, tipped with pale grayish brown (this passing terminally into white); about 1½ inches from the tip is a continuous band of white, half an inch in width; a little over an inch anterior to this is another narrower and less perfect one; primaries approaching black at ends; the tips broadly edged with dull white, as are also the ends of secondaries; head uniform fine delicate ash gray, becoming white on chin and throat, and approaching the same on the forehead; shafts of feathers on head above, and neck, black; neck with obsolete paler transverse bars, these most distinct on chest; breast, abdomen, sides, flanks, axillars, and thighs regularly barred transversely with ash gray and pure white, the bars of each about equal, the white, however, gradually increasing, the ashy bars narrowing posteriorly; under wing coverts white, with sparse, faint, zigzag bars next the axillars and on larger coverts; under surface of primaries white anterior to their emargination, beyond which they are more silvery, leaving about an inch of the terminal portion black, the end of each, however, ashy; two outermost quills crossed by narrow bars of ashy, the rest with indications of the same,

near the shaft; fourth quill longest; third scarcely shorter; second shorter than fifth; first intermediate between eighth, and ninth; iris dark brown; cere, tarsi, and toes, yellow; bill and claws bluish black.

Adult female.—Similar to the male, but the slate-gray above darker, the fasciae of the wings hardly observable; front and throat scarcely whitish; rump almost pure black; second tail band much broken and restricted; ashy prevailing on the chest; ashy bars beneath rather broader.

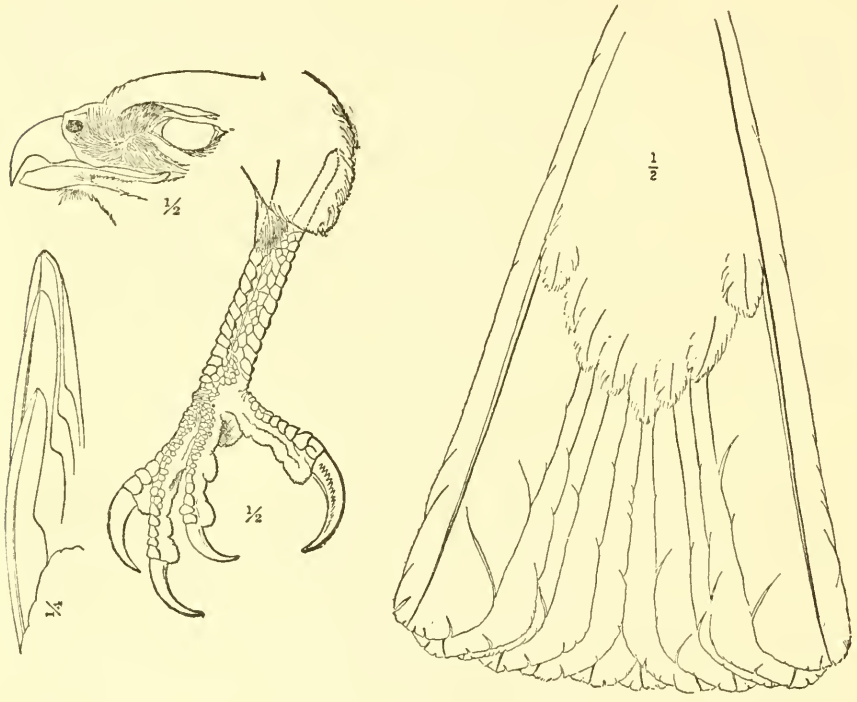

FIGURE 22.—*Buteo*$_{2}^{n}$(*Asturina*) *nitidus*.

Juvenal male.—Above, from bill to upper tail coverts, dark bister-brown, almost black; feathers of the head and neck edged laterally with pinkish ochraceous, or fairly dark cinnamon-buff; scapulars with nearly whole outer webs of this color, being blackish only along edges and at ends; middle wing coverts spotted with the same; secondaries and primaries faintly tipped with whitish; secondaries with indications of darker bands, and outer webs of primaries with still more obscure ones; upper tail coverts white, with sagittate specks of black, one or two on each; tail umber brown (considerably lighter than the wings), tipped with pinkish gray (this passing terminally into dull white), and crossed with six or seven bands of black (these becoming gradually, but very considerably, narrower toward the base);

beneath white, with a vinaceous tinge (deepest laterally); breast, abdomen, and sides with large tear-shaped or cuneate spots of black; thighs with numerous transverse bars of the same; iris brown; bill and claws bluish black; cere and feet yellow.

Juvenal female.—Similar to the young male, but the brown averaging lighter, and more approaching umber.[65]

Natal down.—White, tinged with pale gray on the back and especially the lower back; claws and bill black; iris grayish brown; tarsi, toes, and cere yellow; eyelids and lores cobalt blue.

Adult male.—Wings 232.5–252 (244.6); tail 146–163 (155.9); culmen from cere 20.9–23 (21.6); tarsus 67.5–72 (68.6); middle toe without claw 34.5–38.5 (36.7 mm.).[66]

Adult female.—Wings 254–259 (256.7); tail 161–167 (164.3); culmen from cere 24–25.5 (24.9); tarsus 72–75 (73.5); middle toe without claw 40–43 (42 mm.).[67]

Range.—Resident in southeastern Mexico, from Chiapas, Campeche, Oaxaca, and Veracruz, north through Puebla, Guerrero, Hidalgo, Michoacán, to Colima and Jalisco on the west, and to southern and south-central Tamaulipas (Altamira, Río Martínez, Santa Leonora, Río Cruz) on the east; and south to northern British Honduras (Toledo district and to Belize River).

Type locality.—Veracruz, Mexico.

Falco nitidus (not of Latham, 1790) Lichtenstein, Preis-Verz. Mex. Vog., 1830, 3.

Astur nitidus Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 66, part (Mexico).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, iv, 1848, 87 (Mexico).

Asturina nitidus Bonaparte, Consp. Gen. Av., i, 1850, 30, part (Mexico).

Asturina nitida Sclater, Proc. Zool. Soc. London, 1857, 201 (Jalapa, Veracruz); 1859, 368 (Jalapa), 389 (Talea, Oaxaca; Playa Vicente, Veracruz); 1864, 178 (near City of Mexico).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 35, part.—Baird, Cat. North Amer. Birds, 1859, No. 33, part; *in* Cooper, Orn. California, Land Birds, 1870, 486, part.—Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region of Veracruz).

Morphnus nitida Sclater, Proc. Zool. Soc. London, 1857, 227 (Santecomapem, Veracruz).

Asturina plagiata Schlegel, Mus. Pays-Bas, ii, No. 5, livr. 1, 1862, 1, footnote (City of Veracruz, Veracruz, Mexico; ex *Buteo plagiatus* Lichtenstein, manuscript, in Berlin Mus.).—Sclater and Salvin, Proc. Zool. Soc. London, 1869, 130, part (monogr.); Exotic Orn., 1869, 179, pl. 90, part; Nom. Av. Neotr., 1873, 118, part.—Cooper, Orn. California, Land Birds, 1870, 487, in text, part.—Coues, Check List North Amer. Birds, 1873, No. 358, part.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 204, part (Mexico); Hand-list, i, 1899, 247, part.—Lawrence, U. S. Nat. Mus. Bull., 4, 1875, 39 (Chihuitan,

[65] The juvenal plumage fades very noticeably in the long period of its duration; these descriptions are based on freshly plumaged birds.

[66] Twelve specimens from Veracruz, Campeche, Chiapas, Tehuantepec, Colima, and Guerrero, Mexico.

[67] Six specimens from Yucatán, Veracruz, and Campeche.

Santa Efigenia, and Tehuantepec City, Oaxaca, Oct.–Jan.; food).—Gurney, Ibis, 1876, 483; List Diurn. Birds Prey, 1884, 74, part; Cat. Birds Prey, 1894, 25, part.—Boucard, Proc. Zool. Soc. London, 1883, 456 (Yucatán).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 346, part; ed. 3, 1910, p. 160, part.—Ridgway, Man. North Amer. Birds, 1887, 240, part.—Bendire, Life Hist. North Amer. Birds, i, 1892, 251, pl. 7, fig. 7, part.—Fisher, Hawks and Owls United States, 1893, 85, part.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 74, part (states of Tamaulipas, Veracruz, Puebla, México, Jalisco, Colima, Oaxaca, Chiapas, and Yucatán, Mexico).—Cole, Bull. Mus. Comp. Zool., l, 1906, 121 (Chichen Itzá, Yucatán).—Phillips, Auk, xxviii, 1911, 73 (Altamira, Río Martínez, Santa Leonora, and Río Cruz, Tamaulipas).—Reichenow, Die Vögel, i, 1913, 380.—Swann, Synopt. List Accip., pt. 2, 1919, 55, part.

Astur plagiatus Gray, Hand-list, i, 1869, 30, No. 282, part.

Buteo (*Asturina*) *nitida* b. var. *plagiata* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 64, part (Tehuantepec, Oaxaca).

Asturina nitida plagiata Peters, Check-List Birds of World, i, 1931, 240, part.—Davis, Condor, xlvi, 1944, 10 (Guerrero, Mexico).

Buteo nitidus plagiatus Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, No. 9, 1942, 526 (Michoacan; Apatzingan; spec.).

Asturina plagiata plagiata Miller and Griscom, Amer. Mus. Nov., No. 28, 1921, 4, part (Mexico).—Swann, Synop. Accip., ed. 2, 1922, 90, part; Monogr. Birds Prey, i, 1930, 435, part (monogr.).—Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (e. Quintana Roo, Yucatán).—McLellan, Proc. California Acad. Sci., ser. 4, xvi, 1927, 20 (Labrados, Mexico; plumage; meas.).—Bangs and Peters, Bull. Mus. Comp. Zool., lxviii, 1928, 388 (Chivela and Tapanatipec, Oaxaca, Mexico).—Austin, Bull. Mus. Comp. Zool., lxix, 1929, 373 (Belize River, British Honduras).—van Rossem, Condor, xxxii, 1930, 303 (crit.; distr.).—Amadon and Phillips, Auk, lvi, 1939, 183 (nestling and juvenal plumages).—del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas; Escuintla; spec.).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias, w. Tamaulipas; spec.).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).—Hill, Auk, lxi, 1944, 230 (meas.; sex dimorphism).

BUTEO NITIDUS MAXIMUS (van Rossem)

Sonora Gray Hawk

Adult male.—Similar to that of *Buteo nitidus plagiatus* but larger, the rectrices with only one complete white bar and an incomplete second one.

Adult female.—Similar to that of *Buteo nitidus plagiatus* but larger and with the tail character as in the male (above).

Juvenal (sexes alike).—Very similar to that of *Buteo nitidus plagiatus*, but averaging slightly larger, and paler, the upperparts varying from Prout's brown to Saccardo's umber mottled with light pinkish buff.

Natal down.—White, tinged with pale gray on lower back.

Adult male.—Wing 250.5–272 (259); tail 151–187 (173.5); culmen from cere 20–24.5 (21.5); tarsus 69–75 (72.8); middle toe without claw 34–41.5 (36.8 mm.).[68]

[68] Sixteen specimens; 12 summer birds from Arizona, Sinaloa, and northern Tamaulipas; 4 wintering birds from Guerrero, Colima, and Oaxaca.

Adult female.—Wing 275–289 (282.3); tail 175–195 (186.9); culmen from cere 22.5–25 (23.8); tarsus 71–79.5 (75.8); middle toe without claw 40–44 (41.7 mm.).[69]

Range.—Breeds in the lowlands and foothills of northern and northwestern Mexico from Sonora (San Javier, Saric, Magdalena, Chinobampo, Guirocoba), Sinaloa (Mazatlán) south to Tepic, east through San Luis Potasí and Nuevo León to northern Tamaulipas (Hidalgo); north to Brownsville, Tex., southern New Mexico (Fort Bayard) and to southern Arizona (Tucson, Rillito Creek, Camp Lowell, Patagonia, Chiricahua, Pima County).

Winters from northern Mexico (Sonora, Nuevo León, and northern Tamaulipas) south to Guerrero (Acapulco), Colima, and Oaxaca (Tehuantepec).

Accidental in Illinois (Fox Prairie, Richland County).

Type locality.—San Javier, Sonora, Mexico.

Asturina cinerea (not of Vieillot, 1816) Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 283, footnote (Nuevo León).

Asturina nitida Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 35 (Nuevo León).—Baird, Cat. North Amer. Birds, 1859, No. 33; Rep. United States and Mexican Bound. Surv., ii, pt. 2, 1859, 4 (Nuevo León); *in* Cooper, Orn. California, Land Birds, 1870, 486.—Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).

Astur nitidus Gray, Hand-list, i, 1869, 30, No. 281, part (New Mexico).

Buteo nitida Ridgway, Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois; summer).

Asturina plagiata Sclater and Salvin, Proc. Zool. Soc. London, 1869, 130, part (monogr); Exotic Orn., 1869, 179, pl. 90, part; Nom. Av. Neotr., 1873, 487, part.—Cooper, Orn. California, Land Birds, 1870, 487, in text (Arizona).—Ridgway, Amer. Nat., vi, 1872, 430, in text (Fox Prairie, Richland County, Ill. (1 specimen seen Aug. 19, 1871); vii, 1873, 201, in text (Fox Prairie); Proc. Boston Soc. Nat. Hist., xvi, 1874, 26 (lower Wabash Valley), 327 (Richland County, Ill.); Man. North Amer. Birds, 1887, 240, part.—Coues, Key North Amer. Birds, 1872, 218; Check List North Amer. Birds, 1873, No. 358, part.—Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 298 (Mazatlán, Sinaloa; habits; descr. nest).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 204, part (Arizona and Illinois); Hand-list, i, 1899, 247, part.—Nelson, Bull. Essex Inst., ix, 1877, 50, in text (s. Illinois: Fox Prairie).—Gurney, List Diurn. Birds Prey, 1884, 74, part; Cat. Birds Prey, 1894, 25, part.—American Ornithologists' Union, Check-list, 1886 and ed. 2, 1895, No. 346, 134, part; ed. 3, 1910, 160, part.—Scott, Auk, iii, 1886, 423 (near Tucson, Ariz., common).—Bendire, Life Hist. North Amer. Birds, i, 1892, 251, pl. 7, fig. 7.—Beristain and Laurencio. Mem., Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico).—Fisher, Hawks and Owls of United States, 1893, 85.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 74, part (localities in states of Nuevo León and Sinaloa, Mexico).—Bailey, Handb. Birds Western United States, 1902, 161 (western United States; descr.; distr.); Birds New Mexico, 1928, 175 (genl.; New Mexico).—

[69] Eleven specimens from Arizona, Sinaloa, and Nuevo León.

Cory, Publ. Field Mus Nat. Hist., No. 131, 1909, 469 (Fox Prairie, Richland County, Ill.).

Asturina nitida plagiata Ridgway, Amer. Nat., viii, 1874, 239 (Rillito Creek, near Tucson, Ariz.); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 246; Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 445; Bull. Illlnois State Lab. Nat. Hist., No. 4, 1881, 189 (Fox Prairie, Richland County, Ill., Aug. 1871); Orn. Illinois, i, 1889, 462.—Henshaw, Zool. Wheeler's Exped., 1875, 419, pl. 15 (Camp Lowell, Ariz.).—Visher, Auk, xxvii, 1910, 281 (Pima County, Ariz., breeding in oak belt at 6,000 feet).—Swarth, Pacific Coast Avif., No. 10, 1914, 26 (Arizona; Santa Cruz River Valley; not uncommon; breeds on Rillito Creek, Santa Mountains, San Pedro River, and near Gila Bend); Proc. California Acad. Sci., ser. 4, xviii, 1929, 294 (vicinity of Patagonia, Ariz.).—Swann, Synop. List. Accip., pt. 2, 1919, 55, part.—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 100 (descr.; characters).—Law, Condor, xxxi, 1929, 219 (Chiricahua Mountains, Ariz.).—Peters, Check-list Birds of World, i, 1931, 240, part.—Sutton and Burleigh, Occ. Pap. Mus. Zool., Louisiana State Univ., No. 3, 1939, 26 (Tamaulipas, Victoria, Gómez Farias, etc.); Wils. Bull., lii, 1940, 223, in text (Tamazunchale, Mexico; uncommon).—Monson, Condor, xliv, 1942, 222 (se. Arizona).

Asturina plagata Coues, Check List North Amer. Birds, ed. 2, 1882, No. 527; Key North Amer. Birds, ed. 2, 1884, 551.

Asturina nitida plagata Brewster, Bull. Nuttall Orn. Club, viii, 1883, 31 (Tucson, Ariz.; habits; measurements in flesh).

Asturina plagiata plagiata Miller and Griscom, Amer. Mus. Nov., No. 28, 1921, 4, part (Arizona, Tex., n. Mexico).—Swann, Synop. Accip., ed. 2, 1922, 90, part; Monogr. Birds Prey, i, 1930, 435 part (monogr.).—Griscom and Crosby, Auk, xlii, 1925, 535 (Brownsville, Tex.).—American Ornithologists' Union, Check-list, ed. 4, 1931, 70.—Monson, Condor, xxxviii, 1936, 176, text (Arizona; Papago Indian Reservation; 1 rec.).—Amadon and Phillip, Auk, lvi, 1939, 183. in text (Tucson, Ariz.; nest, descr.).

Buteo nitida var. *plagiata* Ridgway, Ann. Lyc. Nat. Hist., New York, x, 1874, 381 (Fox Prairie, Richland County, Ill.).—Nelson, Bull. Essex Inst., viii, 1876, 151 (Illinois).

Asturina plagiata maxima van Rossem, Condor, xxxii, 1930, 303 (San Javier, Sonora; orig. descr.; distr.); Trans. San Diego Soc. Nat. Hist., vi, 1931, 243 (San Javier, Saric, Chinobampo, Guirocoba, and Magdalena; Sonora, Mexico).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).

Buteo nitida maxima American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).

Buteo nitidus maximus van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 57 (Sonora; common summer vis.).—Neff, Condor, xlix, 1947, 33 (Sonora; c. of La Colorado).

BUTEO NITIDUS MICRUS (Griscom)

Costa Rican Gray Hawk

Adult male.—Similar to that of *Buteo nitidus plagiatus*, but smaller; tail with only one complete white bar and usually only traces of a second one or even none at all; the underparts slightly darker by virtue of the fact that the gray bars are a little wider, the white ones

narrower; iris dark brown; cere and tarsi yellow; bill and claws dark blue-black.

Adult female.—Similar to the male but averaging darker above and below, and larger in size.

Juvenal (sexes alike).—Similar to that of *Buteo nitidus plagiatus*, but averaging smaller, and darker, the dark tail bars broader (12–20 mm. as against 6–15 mm. in *B. n. plagiatus*); bill black, bluish at extreme base; cere and edge of gape greenish yellow; iris brown; tarsi and toes wax yellow.

Natal down.—Not known.

Adult male.—Wing 231–264 (240.7); tail 149–178 (157.7); culmen from cere 20–23 (21); tarsus 64–71 (68); middle toe without claw 32–36 (34.8 mm.).[70]

Adult female.—Wing 257–270 (265.1); tail 170–182 (174.2); culmen from cere 22–25 (22.9); tarsus 68–74 (72); middle toe without claw 37–42 (39.7 mm.).[71]

Range.—Resident in the arid tropical zone from northern Guatemala and southern British Honduras, south through Guatemala (Finca Carolina, Finca El Ciprés, Finca El Espina, Puebla, Hacienda California, San Lucas, Constancia, Chimalapa, San Gerónimo, Escuintla, Savana Grande, Retalhuleu; Honduras chiefly in the western part, not on the Caribbean slope beyond Tela (Comayagua, Tigre Island, Ruatan Island, Lancetilla, San Pedro, Lake Yojoa, Urraca, Camayaquela, La Cumbre, Tela, Progresso); western Nicaragua (Chinandega, San Juan del Sur, Corinto, Matagalpa, Metapa); Salvador (Sitio del Niño, Lake Olomega, Volcán de San Miguel, Río San Miguel, El Tablón, Hacienda Chanmico, Sansonata, Acajaitta, Divisadero, Colima, Lake Chanmico, Hacienda Zapotitán, Lake Guija, San Salvador, San Sebastián, Barro de Santiago, Puerto del Triumfo), and northwestern Costa Rica as far south as the Gulf of Nicoya (La Palma de Nicoya, Gulf of Nicoya, San Mateo).[72]

Type locality.—Four miles east of Chinandega, Nicaragua.

Asturina nitida (not *Falco nitidus* Latham, 1790) Sclater and Salvin, Ibis, 1859, 217 (Guatemala, food).—Owen, Ibis, 1861, 68 (San Gerónimo, Guatemala; descr. nest and eggs).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (Gulf of Nicoya, Costa Rica); ix, 1869, 147 (Costa Rica; crit.).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).

[70] Twenty-five specimens from Guatemala, Salvador, Honduras, Nicaragua, and Costa Rica.

[71] Twenty-one specimens from Guatemala, Salvador, Honduras, Nicaragua, and Costa Rica.

[72] Birds from British Honduras and Guatemala are somewhat intermediate between true *micrus* and *plagiatus*, but are nearer the former; birds from extreme southern Mexico (Chiapas, Campeche) are also intermediate, but are closer to *plagiatus*.

Asturina nitida? Taylor, Ibis, 1860, 225 (Comayagua, Honduras).

Asturina polionota (not of Kaup, 1847) Cabanis, Journ. für Orn., 1864, 208 (Costa Rica; coll. Berlin Mus.?)

Astur plagiatus Gray, Hand-list, i, 1869, 30, No. 282, part (Guatemala).

Asturina plagiata (not of Schlegel, 1862) Sclater and Salvin, Proc. Zool. Soc. London, 1869, 130, part (monogr.); Exotic Orn., 1869, 179, part (Guatemala; Costa Rica); Proc. Zool. Soc. London, 1870, 838 (coast of Honduras); Nom. Av. Neotr., 1873, 118, part.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 204, part (Guatemala, Costa Rica); Hand-list, i, 1899, 247, part.—Nutting, Proc. U. S. Nat. Mus., v, 1882, 403 (La Palma de Nicoya, Costa Rica).—Gurney, List Diurn. Birds Prey, 1884, 74, part; Cat. Birds Prey, 1894, 247, part.—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 346, part; ed. 3, 1910, p. 160, part (Costa Rica).—Ridgway, Man. North Amer. Birds, 1887, 240, part.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126, part (San Mateo, Costa Rica; Acajaitta, El Salvador).—Salvin, Ibis, 1889, 374 (Ruatan Island, Honduras).—Lantz, Trans. Kansas Acad. Sci., for 1896–97 (1899), 219 (Naranjo, Guatemala).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 74, part (Constancia, Chimalapa, San Gerónimo, Escuintla, Savana Grande, Tetalhulen, Guatemala; Acajutla, La Libertad, El Salvador; Ruatan Island, San Pedro, Honduras; Chinandega, San Juan del Sur, and Sucuya, Nicaragua; Barrance, La Palma de Nicoya, and San Mateo, Costa Rica).—Dearborn, Publ. Field Mus. Nat. Hist. No. 125, orn. ser., i, No. 3, 1907, 82 (Gualan, Patulul, Guatemala).—Carriker, Ann. Carnegie Mus., vi, 1910, 459 (Santo Domingo de San Mateo, Bolsón, and Bebedero, Costa Rica).—Swann, Synopt. List Accip., pt. 2, 1919, 55, part.

Asturina nitida var. *plagiata* Zeledón, Cat. Aves Costa Rica, 1882, 27.

Buteo (*Asturina*) *nitida* b. var. *plagiata* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 64, part (Costa Rica).

Asturina plagiata micrus Griscom, Amer. Mus. Nov., No. 25, 1921, 4 (Chinandega, Nicaragua; coll. Amer. Mus. Nat. Hist.); Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 155 (distr.; localities in Guatemala).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 416 (Lancetilla, Tela, Progreso, Honduras; crit.); Check-list Birds of World, i, 1931, 240.—Swann, Monogr. Birds Prey, i, 1930, 436 (monogr.).—van Rossem, Condor, xxxii, 1930, 303 (crit.; distr.; characters).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; Cantarranas, Comaryagua, Ruatan Island, San Pedro).

Asturina plagiata minor [lapsus] Swann, Synop. Accip., ed. 2, 1922, 90.

Asturina nitida micrus van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, No. 27, 1935, 16 (Chuntuqui, Petén, Guatemala; spec.; meas.).—Deignan, Auk, liii, 1936, 187, in text (Honduras; spec.; descr.).

Asturina nitida micra Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 28 (Mexico; Tabasco, Balancan; spec.; meas.).

Buteo plagiatus micrus van Rossem, Birds El Salvador, 1938, 114 (El Salvador, distr.; habits; colors of soft parts).

Buteo nitidus micrus Sassi, Temminckia, iii, 1938, 298 (Costa Rica, Bebedero; 2 specs.).

Buteo nitida micrus Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 203 (Chichen Itzá and Matamoros, Yucatán; spec.).

BUTEO NITIDUS BLAKEI Hellmayr and Conover

Panama Gray Hawk

Adult male.—Similar to that of *Buteo nitidus plagiatus*, but with the entire upperparts obscurely to fairly definitely barred; the top of the head, nape, and anterior interscapulars barred with whitish, the rest of the upperparts barred with deep gull gray to dark gull gray, these bars sometimes not very distinct from the deep neutral gray to dark neutral gray of the darker bars (or interspaces); rectrices with only one complete white band and traces of a second one; chin and uppermost part of throat whiter than in *plagiatus*; size averaging slightly smaller.

Adult female.—Similar to the male but larger.

Immature.—Not known (if any). If this race does have a true immature plumage it is probably similar to that of typical *nitidus*.

Juvenal (sexes alike).—Generally similar to that of *Buteo nitidus plagiatus*, but with the top of the head very different—cartridge buff more or less washed with cinnamon and the feathers of the central and hind part of the crown with fairly broad fuscous-black median streaks; upper wing coverts, scapulars, and interscapulars edged with tawny; rectrices with fewer but broader bands (four or five blackish bands as compared with seven fuscous-black ones in *plagiatus*) (one specimen has four or five bands on the median pairs of rectrices and seven narrow ones on the outermost pairs!); underparts much suffused with tawny buff; chin and throat unspotted; breast, abdomen, sides, and flanks spotted with broad tear-shaped fuscous-black spots, the spots more rounded, less streaklike then in *plagiatus*.

Natal down.—Not known.

Adult male.—Wing 236–242 (239.4); tail 159–162 (162.8); culmen from cere 21.5–23 (22.1); tarsus 67–73 (69.4); middle toe without claw 35–39 (36.8 mm.) (5 specimens from Panama).

Adult female.—Wing 241–245 (242.8); tail 169–176 (172.8); culmen from cere 22.5–23 (22.8); tarsus 71–74 (72.8); middle toe without claw 37–40 (39 mm.) (4 specimens from Panama).

Range.—Resident in the tropical zone from southwestern Costa Rica (Pozo del Río Grande; El Pozo de Térraba), south on the Pacific slope to the Panama Canal Zone and to extreme eastern Panama and to the Santa Marta district of Colombia (Río Frío, Bonda, Don Diego, Mamatoco, Dibulla).

Type locality.—Pozo del Río Grande, Bornea (=Boruca), Costa Rica.

Asturina nitida (not *Falco nitidus* Latham, 1790) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 316 (Panama).—Sclater and Salvin, Proc. Zool. Soc. London, 1864, 369 (Panama); Nom. Av. Neotr., 1873, 118, part (Panama).—Salvin, Ibis 1870, 113, in text (Panama; crit.).—Sharpe, Cat.

Birds Brit. Mus., i, 1874, 203, part (in synonymy; part); Hand-list, i, 1899, 257, part (Panama).—Ridgway, Man. North Amer. Birds, 1887, 240, part.—Bangs, Proc. New England Zool. Club, ii, 1900, 15 (Lion Hill, Panama); Auk, xxiv, 1907, 290 (Pozo del Río Grande, sw. Costa Rica).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 73, part (Panama).—Carriker, Ann. Carnegie Mus., vi, 1910, 459 (El Pozo de Terraba, sw. Costa Rica).—Reichenow, Die Vögel, i, 1913, 380.—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Gatun; Panama Canal Zone; spec.).—Hallinan, Auk, xli, 1924, 311 (Mindi, C. Z., Panama; food).

Asturina nitida nitida Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 245, part (Panama).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 153 (Bonda, Don Diego, Mamatoco, Dibulla, Colombia).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 133 (Panama Canal Zone; descr.).—Peters, Check-list Birds of World, i, 1931, 241 part (e. Panamá).—Anonymous, El Hornero, vi, 1935, 188, part (Panama).

Asturina nitida costaricensis Swann, Synop. Accip., ed. 2, 1922, 90 (Pozo del Río Grande, Boruca, sw. Costa Rica; coll. Mus. Comp. Zool.); Monogr. Birds of Prey, i, 1930, 434 (monogr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 189 (type in Mus. Comp. Zool.).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 366 (near Río Frío, Magdalena, Colombia; crit.).—Peters, Check-list Birds of World, i, 1931, 241.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Obaldia, ea. Panama); lxxvii, 1935, 299 (Panama records).

Buteo nitidus blakei Hallmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 160 (new name for *B. n. costaricensis* Swann, not *B. borealis costaricensis* Ridgway).

Genus PARABUTEO Ridgway

Antenor (not of Montfort, 1808) Ridgway Proc. Boston Soc. Nat. Hist., xvi[1] May 21, 1873, 63, footnote: *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 248. (Type, by original designation, *Falco unicincta* Temminck.)

Parabuteo Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, Jan. 1874, 250. (To replace *Antenor* Ridgway, preoccupied.)

Erythrocnema Sharpe, Cat. Birds Brit. Mus., i, June 1, 1874, 84. (Type by original designation, *Falco unicinctus* Temminck.)

Asturina Reichenow, Die Vögel, i, 1913, 380, part.

(?) *Spizogeranus* (not *Spizageranus* Kaup, 1844) Bonaparte, Rev. Mag. Zool., ser. 2, ii, 1850, 488. (Type, by original designation, "*unicinctus* de Temminck.")

Rather large Buteoninae (wing about 296-371 mm.) with tail more than three-fifths as long as wing, its tip distinctly rounded; distance from most anterior point of cere to tip of maxilla equal to distance from same point to anterior angle of eye; hallux one-third as long as tarsus; loral region essentially nude (with only sparse fine bristles), the adults plain dark brown with chestnut or deep cinnamon-rufous; lesser and under wing coverts and thighs, white tail coverts, and base and tip of tail white.

Bill relatively long, the distance from margin of cere in front of strinol to tip of maxilla almost equal to distance from same point to

anterior angle of eye, its depth at base of culmen nearly if not quite equal to length (chord) of the latter and about one-third greater than its width at same point; culmen slightly arched basally, strongly and rather abruptly decurved, the maxillary unguis rather long and acute, at nearly a right angle with axis of maxilla; gonys about half as long as culmen, slightly but distinctly convex, ascending terminally; maxillary tomium strongly sinuated, concave immediately behind the unguis, then strongly convex, producing a rather prominent lobe; rictus about on line (vertically) with anterior angle of eye; cere long, its length on top equal to a little more than half the length (chord) of culmen, rather broad on top, where very slightly ascending basally, its anterior margin a nearly straight, almost vertical line, slightly curving outward (distally) in front of nostril; nostril rather large, obliquely broadly oval, above middle of cere. Wing rather long, the longest primary exceeding distal secondary by about one-third the length of wing; fourth or fourth and fifth primaries longest, the second shorter than sixth, the first about equal to ninth; four outer primaries with inner webs emarginated, the fifth distinctly sinuated; second to sixth with outer webs sinuated. Tail between three-fifths and two-thirds as long as wing, its tip distinctly but not extensively rounded. Tarsus about one-fourth as long as wing, a little less than two-fifths as long as tail, feathered above in front for about two-fifths its length, the acrotarsium and planta tarsi each with a single continuous series of large transverse scutella; middle toe much more than half as long as tarsus; outer toe extending nearly to middle of third phalanx of middle toe, the inner extending to a little beyond base of same phalanx; hallux nearly if not quite as long as inner toe, its claw about as long as the digit; claws moderate in size and curvature, rather thick, not very acute, broadly grooved beneath, distinctly graduated in size, that of hallux more than twice as long as that of outer toe; web between basal phalanges of outer and middle claws well developed (rather large).

Plumage and coloration.—Plumage in general rather soft, with feathers distinctly outlined, those of head (especially on pileum) sublanceolate; feathers on outer side of thighs much larger than on inner side, but scarcely plumelike; entire loral region nude, with scattered fine bristles, those on upper anterior portion longer and recurved. Adults plain dark brown with lesser and under wing coverts and thighs deep cinnamon-rufous, the tail coverts and tip and base of tail white. Young dusky brown above varied with rusty or buffy, beneath buffy (more or less deep) with longitudinal markings of dusky or blackish; tail grayish brown crossed by numerous narrow bands of dusky.

Range.—Tropical and subtropical continental America, from southern border of United States to Argentina and Chile. (Monotypic.)

KEY TO THE RACES OF PARABUTEO UNICINCTUS

a. Breast and abdomen uniform dark sooty brown; no white showing on these areas.

b. Size smaller, wings averaging 330 mm. in males, 347 mm. in females (southeastern United States, eastern Mexico, and Central America).

P. u. harrisi, ad. (p. 370)

bb. Size larger, wings averaging 342 mm. in males, 375 mm. in females (southwestern United States and northwestern Mexico).

P. u. superior, ad. (p. 374)

aa. Breast and abdomen with at least a little whitish.

b. Breast and abdomen dark sooty brown, very sparsely streaked with paler (white or buffy); rectrices uniform fuscous-black, tipped with white.

P. u. unicinctus, ad. (extralimital) [73]

bb. Breast and abdomen with much whitish or buffy streaking; tail not as above.

c. All the rectrices grayish brown, conspicuously narrowly banded with fuscous-black.....**P. u. unicinctus**, juv. (extralimital)

cc. The median rectrices, at least, not banded or very faintly so.

d. Dark, the breast often almost uniformly dark (southwestern United States and northwestern Mexico.....**P. u. superior**, juv. (p. 374)

dd. Paler, the breast buffy streaked with dark (southeastern United States, eastern Mexico, and Central America)...**P. u. harrisi**, juv. (p. 371)

PARABUTEO UNICINCTUS HARRISI (Audubon)

HARRIS'S DUSKY HAWK

Adult (sexes alike).—Entire head, nape, scapulars, interscapulars, upper back, throat, breast, sides, and abdomen (but not the thighs or under tail coverts) dark sooty brown to fuscous, usually blacker on the scapulars and upper back than on the head or underparts; the lower back and rump similar but tinged with dark chestnut; lesser upper wing coverts rich chestnut; the median upper wing coverts fuscous edged with chestnut; greater upper wing coverts dark fuscous; remiges dark fuscous becoming fuscous-black on the primaries; the four outermost primaries with their inner webs emarginated, the fifth slightly sinuated; the fourth primary the longest, then the fifth, the third and sixth about equal, the second slightly longer than the seventh, the first shorter than the ninth; upper tail coverts white, sometimes with concealed fuscous bars or spots; rectrices basally white and tipped with white; otherwise black, the lateral rectrices paling very slightly to fuscous on the inner webs; under wing coverts and thighs rich chestnut; under tail coverts pure white; iris hazel brown; cere, lores, and orbit yellow; bill light bluish ash, dusky toward the tip; feet orange-yellow; claws black.

[73] **Falco unicinctus** Temminck, Planches Col., livr. 53, 1824, pl. 313 (vicinity of Rio Grande, near Boa Vista, Brazil).—*Astur unicinctus* Cuvier, Règne Anim., i, 1829, 322.—*Morphnus unicinctus* Lesson, Man. d'Orn., i, 1820, 90.—*Parabuteo unicinctus unicinctus* Swann, Monogr. Birds Prey, i, 1925, 162; Peters, Check-list Birds of World, i, 1931, 240.

Juvenal (sexes alike).—Similar to the adult, but with the feathers of the upperparts generally narrowly edged with dark chestnut; the chin, throat, and abdomen streaked with white or buffy white, the lower abdomen nearly plain tawny whitish; thighs pale tawny narrowly barred with chestnut; the rectrices banded with dark fuscous-black against grayish fuscous background, the median pair almost uniform fuscous-black, the later ones whitish on the basal half or more of the inner web, strikingly banded with fuscous black.

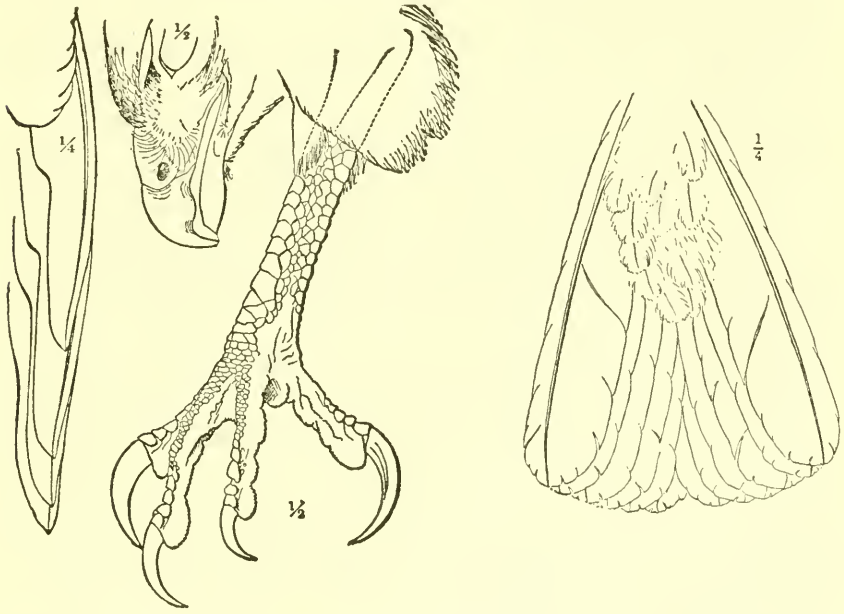

FIGURE 23.—*Parabuteo unicinctus.*

Natal down.—Pale pinkish tawny buff, becoming almost white on the underparts, most tawny on the top of the head; bill light brown horn color above and yellowish white below (Sennett).

Adult male.—Wing 318.3–331.5 (323.2); tail 215–262 (234); culmen from cere 24–28 (26.4); tarsus 84–90 (86–2); middle toe without claw 48–48 (48.0 mm.).[74]

Adult female.—Wing 325–370 (358.4); tail 213–243 (232.5); culmen from cere 25–29 (26.7); tarsus 80–92 (87); middle toe without claw 45–55 (49.7 mm.).[75]

[74] Three specimens from Texas. Van Rossem, Trans. San Diego Soc. Nat. Hist., ix, 1942, 378, gives measurements of 12 males as wings 310–352 (330.8); tail 207–230 (218.5 mm.).

[75] Fifteen specimens from Texas, New Mexico, and Mexico (Nuevo León, Jalisca).

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Range.—Breeds and is resident from southern Texas (San Antonio, Eagle Pass, Giddings, Brownsville, Cameron, Hidalgo, and Refugio Counties, Corpus Christi) south through most of Mexico except the northwest (Jalisco, Colima, Oaxaca, etc.), Guatemala, Nicaragua (San Rafael del Norte), Costa Rica (San José, La Palma de Nicoya, Río Matina, etc.), and Panama (Santa Fé de Veragua, Almirante) to northern Venezuela (Margarita Island), Colombia (La Manuelita), and western Ecuador (Chone, Puná Island, Casanga).

Casual in Louisiana and Mississippi (between Bayou Sara and Natchez, and islands off the coast).

Accidental in Iowa (Hillsboro, Van Buren County), and Ohio (near Harrisburg).

Type locality.—Between Bayou Sara and Natchez, Miss.

Buteo harrisi Audubon, Birds Amer., fol. ed., 1837, pl. 392 (Mississippi).—Bonaparte, Geogr. and Comp. List, 1838, 3.—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 56, part (Mexican localities other than in Lower California, Sonora, and Sinaloa; San Rafael del Norte, Nicaragua; La Palma de Nicoya and San José, Costa Rica; Santa Fé de Veraguas, Panama).

Buteo harrisii Aubudon, Synopsis, 1839, 5 (Mississippi); Birds Amer., 8vo. ed., i, 1840, 25, pl. 5.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 111.

Buteo unicinctus harrisi Coues, Key North Amer. Birds, 1872, 215; Check-List North Amer. Birds, 1873, No. 348; *in* Sennett, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 1, 1878, 42 (Brownsville and Hidalgo, s. Texas); Check-List North Amer. Birds, ed. 2, 1882, No. 512; Key North Amer. Birds, ed. 2, 1884, 542.

Falco harrisii Audubon, Orn. Biogr., v, 1839, 30 (between Bayou Sara, La., and Natchez, Miss.).

Craxirex harrisii Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 142.

Craxirex unicinctus var. *harrisii* Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 302, in part (Tepec; Colima).

Parabuteo harrisi Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 251, sub-fig.—Sharpe, Hand-list, i, 1899, 247, in part.

Parabuteo unicinctus harrisi Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 250, part (diagnosis); Man. North Amer. Birds, 1887, 229, part.—Nutting, Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica; habits).—Zeledón, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica); Anal. Mus. Nac. Costa Rica, i, 1887, 126 (San José, Costa Rica).—American Ornithologists' Union, Check-list, 1886, No. 335; ed. 2, 1895, 129; ed. 3, 1910, p. 157; ed. 4, 1931, 69, part.—Sennett, Auk, iv, 1887, 26 (descr. young and downy young).—Chapman, Bull. Amer. Mus. Nat. Hist., iii, 1890, 322 (Corpus Christi, Texas, breeding); xxxvi, 1917, 241 (La Manuelita, Colombia; crit.); lv, 1926, 223 (distr.; Ecuador).—Cherrie, Auk, vii, 1890, 333 (San Jose, Costa Rica); ix, 1892, 328 (San José).—Attwater, Auk, ix, 1892, 233 (San Antonio, Tex., common res.).—Bendire, Life Hist. North Amer. Birds, i, 1892, 202, pl. 6, figs. 3, 4.—Coombs, Auk, ix, 1892, 205 (Calumet Plantation, St. Mary Parish, La., Oct.).—Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 1892, 105 (Corpus Christi, Tex., common).—Beyer, Proc. Louisiana Soc. Nat. for 1897–99 (1900), 99 (coast of Louisiana and larger islands).—Bailey, Handbook Birds Western United

States, 1902, 154 (Western United States; descr.; distr.; part).—Carroll, Auk, xvii, 1904, 342 (Refugio County, Tex., common res.; habits).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 246 (Van Buren County, Iowa).—Carriker, Ann. Carnegie Mus., vi, 1910, 454 (Palo Verde de Guanacaste and mouth of Río Matina, Costa Rica).—Lacey, Auk, xxviii, 1911, 207 (Kerrville, Tex.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 91 (monogr.; Iowa).—Earl, Wils. Bull., xxx, 1918, 15 (4 miles sw. of Harrisburg, Ohio, about Dec. 24, 1917).—Smith, Condor, xx, 1918, 212, in text (still common in lower Rio Grande Valley).—Bunker, Auk, xxxvi, 1919, 283 (near Lawrence, Kans., Dec. 25, 1918).—Snyder, Auk, xxxvi, 1919, 567, in text (Wichita, Kans., Dec. 14, 1918).—Swann, Synopt. List Accip., pt. 1, 1919, 18, part; Synop. Accip., pt. 1, 1921, 29, part; Monogr. Birds Prey, i, 1925, 164, part (monogr).—Cahn, Condor, xxiv, 1922, 177 (common Corpus Christi to Flour Buff, Tex.).—Bent, Wils. Bull., xxxvi, 1924, 13 (status, se. Texas).—de Laubenfels, Wils. Bull., xxxvi, 1924, 169 (Brownsville, Tex.).—Friedmann, Auk, xlii, 1925, 545 (Lower Rio Grande Valley, Tex.).—Griscom and Crosby, Auk, xlii, 1925, 534 (status, Brownsville, Tex.).—Simmons, Birds Austin Region, 1925, 100 (Austin, Tex.; habits, nests; eggs; descr., etc.).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 100, part (descr.; chars.).—Palmer, Condor, xxx, 1928, 282, in text (patronymics).—[Arthur], Birds Louisiana, 1931, 202, in text (descr.; status; in Louisiana).—Bailey and Wright, Wils. Bull., xliii, 1931, 203 (status; southern Louisiana).—Peters, Check-list Birds of World, i, 1931, 240, part; Bull. Mus. Comp. Zool., lxxi, 1931, 310 (Almirante, Panama).—Bennett, Univ. Missouri Stud., vii, No. 3, 1932, 23 (Kansas; Iowa).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 151 (distr.; Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (Panama: Santa Fé, Veraguas; Almirante).—DuMont, Wils. Bull., xlv, 1933, 207, in text (Iowa; status questioned).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 142 (life hist.).—Oberholser, Bird Life Louisiana, 1938, 172 (Louisiana; casual in southern part; record from near Patterson, St. Mary Parish, Oct. 1889).—Sutton, Ann. Carnegie Mus., xxvii, 1938, 177 (Tarrant County, Tex.; probably breeds).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 26 (ne. Mexico; Nuevo Leon; Tamaulipas; s. Coahuila).—Dugand, Rev. Acad. Colomb., iii, 1940, 219 (Magdalena-Caribbean part of Colombia; spec.).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; accidental; 1 shot near Wichita, another near Lawrence).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas).—Blake and Hanson, Publ. Field Mus. Nat. Hist. zool. ser., xxii, No. 9, 1942, 526 (Michoácan, Apatzingan; spec.).—Hill, Auk, lxi, 1944, 236 (meas. sex dimorphism).—McAtee, Wils. Bull., lvi, 1944, 154 (Gulf State migra.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 178 (Kansas; accidental).

Antenor unicinctus harrisi Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 42 (Tehuantepec City, Oaxaca; color of unfeathered parts).—Merrill, Proc. U. S. Nat. Mus., i, 1878, 154 (Fort Brown, Tex., resident; descr. nest and eggs).—Coues, *in* Sennett, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 3, 1879, 419 (synonymy).—Sennett, U. S. Geol. and Geogr. Surv. Terr. Bull. 5, No. 3, 1879, 419–420 (Lomita Ranch, Tex., Apr., May; habits; descr. eggs).—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193, in part; Nom. North Amer. Birds, 1881, No. 434 part).—Zeledón, Cat. Aves Cost Rica, 1882, 27.

Antenor unicinctus β harrisi Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 162, 163, 165 part (monogr.).

Antenor harrisi GURNEY, List Diurn. Birds Prey, 1884, 71, part; Cat. Birds Prey, 1894, 25, part.

Asturina harrisi REICHENOW, Die Vögel, i, 1913, 384.

Buteo unicinctus (not *Falco unicinctus* Temminck, 1824), MORTON, Proc. Acad. Nat. Sci. Philadelphia, iii, 1846, 98 (near Natchez, Miss.)—GRAY, Hand-list, i, 1869, 7, No. 55, part (s. United States; Mexico; Veraguas).

Urubitinga unicinctus BONAPARTE, Consp. Gen. Av., i, 1850, 29.

Urubitinga unicincta SCLATER and SALVIN, Ibis, 1859, 216 (Guatemala); Nom. Av. Neotr., 1873, 119, part (Mexico).

Morphnus unicinctus CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 453 (s. North America); vii, 1855, 284 (Texas).—BREWER, North Amer. Oology, i, 1857, 60, pl. 2, figs. 20, 21.—FINSCH, Verh. Naturw. Ver. Bremen, ii, 1870, 363 (Mazatlán, Mexico).—CUBAS, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).

Craxirex unicinctus CASSIN, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 46.—BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 4 (Brownsville and Oyster Point, Tex.); Cat. North Amer. Birds, 1859, No. 46.—DRESSER, Ibis, 1865, 329 (s. Texas; colors of unfeathered parts).—SALVIN, Proc. Zool. Soc. London, 1867, 158 (Santa Fé, Veraguas, Panama).

Spizigeranus unicinctus SCLATER, Proc. Zool. Soc. London, 1860, 288 (Babahoyo, Ecuador).

Asturina unicincta SCHLEGEL, Mus. Pays-Bas, Asturinae, 1862, 2, part (Mexico).

Erythrocnema unicincta SHARPE, Cat. Birds Brit. Mus., i, 1874, 85, part (in syn.; southernmost North America, part).—SALVADORI and FESTA, Boll. Mus. Zool. Torino, xv, 1900, 30 (Ecuador).

Parabuteo unicinctus IHERING and IHERING, Av. Brazil, 1907, 87, part (in statement of range).—AMERICAN ORNITHOLOGISTS' UNION, Check-list North Amer. Birds, ed. 3, 1910, 157, part.—HOUSSE, Rev. Universitaria, Nos. 8–9, 1934, 1005, part (monogr.; plumage; habits).—ENGELS, Auk, lviii, 1941, 63, 64, in text (skeletal ratios).

Buteo albicaudatus CLARK, Auk, xix, 1902, 261 (Margarita Island, Venezuela, part).

PARABUTEO UNICINCTUS SUPERIOR van Rossem

WESTERN DUSKY HAWK

Adult (sexes alike).—Similar to that of *Parabuteo unicinctus harrisi*, but larger (this difference more pronounced in females than in males) and the general coloration somewhat darker—fuscous-black to almost black.

Juvenal (sexes alike).—Similar to the corresponding stage of *Parabuteo unicinctus harrisi*, but larger, and averaging slightly darker, the underparts often with the dark streaks so extensive as to make for an almost uniform tone, and the thighs often almost as dark as in the adults.

Natal down.—Similar to that of *Parabuteo unicinctus harrisi*.

Adult male.—Wing 324. 4–357. 1 (337. 8); tail 224–257 (245. 2); culmen from cere 25–27. 5 (26. 2); tarsus 80–88 (84. 6); middle toe without claw 44. 5–49 (46. 4 mm.).[76]

[76] Four specimens from Arizona, Baja California, and Sinaloa.

Adult female.—Wing 351–388 (370. 4); tail 227–253 (238. 4); culmen from cere 27–28 (27. 6); tarsus 80–91 (86. 4); middle toe without claw 51–56 (53. 5 mm.).[77]

Range.—Resident from southwestern California (Brawley, Palo Verde, Colorado River); Arizona (Yuma, Pecks Lake, Tombstone, San Bernardino Ranch); south to Baja California (San Quintín, Ensenada, Miraflores, Cape San Lucas); Sonora; Sinaloa; and Nayarit; wandering in the nonbreeding season to Guanajuato and to San Luis Potosí.

Type locality.—Laguna Dam, lower Colorado River, Imperial County, Calif.

Morphnus unicinctus Kennerly, Rep. Pacific R. R. Surv., 4, pt. 6, No. 1, 1856, 16 (Camp 134, "New Mexico," *i.e.* Arizona?).

Craxirex unicinctus Kennerly, Rep. Pacific R. R. Surv., x, No. 3, 1859, 20 (Colorado River, Ariz.).

Erythrocnema unicincta Sharpe, Cat. Birds Brit. Mus., i, 1874, 85, part (in syn.; southernmost North America, part).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 273, part ("west-coast California").

Parabuteo unicinctus American Ornithologists' Union, Check-list, ed. 3, 1910, 157, part.—Sutton and Phillips, Condor, xliv, 1942, 59 (Papago Indian Reservation, Ariz.).—Kent, Condor, xlvi, 1944, 129 (s. California).—Neff, Condor, xlix, 1947, 33 (near Cornelio, Sonora).

Craxirex harrisii Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 49 (Arizona).—Cooper, Orn. California, Land Birds, 1870, 493 (Colorado Valley near Fort Mojave).

Craxirex unicinctus var. *harrisii* Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 302, part (Mazatlán, Sinaloa).

Antenor unicinctus B *harrisi* Ridgway, U. S. Geol. and Geogr. Surv. Terr., Bull. 2, No. 2, 1876, 162, 163, 165, part (monogr.).

Antenor unicinctus harrisi Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193, part; Nom. North Amer. Birds, 1881, No. 434, part.

Antenor harrisi Gurney, List Diurn. Birds Prey, 1884, 71, part; Cat. Birds Prey, 1894, 25, part.

Parabuteo unicinctus harrisi Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 250, part (Colorado River); *in* Belding, Proc. U. S. Nat. Mus., v, 1882, 44 (Cape San Lucas, Lower California), 548 (San José, Lower California); Man. North Amer. Birds, 1887, 229, part.—Belding, Proc. U. S. Nat. Mus., v, 1882, 544 (Cape region, Lower California).—Scott, Auk, iii, 1886, 422 (near Tucson, Ariz.).—Anthony, Zoe, iv, 1893, 233 (between Ensenada and Colnett and on San Pedro Mártir Mountains, Lower California); Auk, xii, 1895, 137 (San Fernando, and between Rosario and San Carlos, Lower California; breeding); Proc. California Acad. Sci., ser. 4, xiv, 1925, 295 (near San Quintín Island, Mexico).—Bailey, Handb. Birds Western United States, 1902, 154, part.—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 82 (Cape region, Lower California; res.; habits).—Thayer and Bangs, Condor, ix, 1907, 136 (Rosarita and Santa Ana, Lower California; Mar.).—Grinnell, Pacific Coast Avif., No. 8, 1912, 10 (California); No. 11, 1915, 65 (near Ehrenberg, lower Colorado River; south of Palo Verde;

[77] Nine specimens from Arizona, Baja California, Sonora, Guanajuato, and San Luis Potosí.

Mission Valley near San Diego); Univ. California Publ. Zool., xxxii, 1928, 108 (distr.; Lower California).—Grey, Condor, xv, 1913, 128 (Mission Valley, near San Diego, Calif., spec.).—Swarth, Pacific Coast Avif., No. 10, 1914, 25 (Arizona; breeds at Tucson; Huachua Mountains); Proc. California Acad. Sci., ser. 4, xviii, 1929, 293 (near Sonocta, Ariz.).—Swann, Synopt. List Accip., pt. 1, 1919, 18, in part; Synop. Accip., pt. 1, 1921, 29, part; Monogr. Birds Prey, i, 1925, 164, in part (monogr.).—Bancroft, Condor, xxii, 1920, 156 (near Brawler, Imperial Valley, Calif.; descr. nest); xxxii, 1930, 27 (San Ignacio, Santa Rosalia, Lower California).—Chambers, Condor, xxiii, 1921, 65 (between Calexico and Heber, s. California; flock of 400–500; Oct. 20, 1920); xxvi, 1924, 75, in text (flight; California).—Kellogg, Condor, xxiv, 1922, 29, in text (15 miles se. of Mesa, Ariz., Mar. 15, 1921; 3 specs.).—Dawson, Birds California (stud. ed.), iii, 1923, 1672 (genl.; California).—Townsend, Bull. Amer. Mus. Nat. Hist., xlviii, 1923, 13 (Cape San Lucas, Lower California, March 23).—Miller, Condor, xxvii, 1925, 71, in text (food habits); xxxii, 1930, 210 (habits; nesting; Yuma district, California).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 100, part.—Huey, Auk, xliii, 1926, 352 (near Santo Domingo; between Santo Domingo and San Ramon, nw. Lower California); Trans. San Diego Soc. Nat. Hist., ix, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; 1 seen at Gray's Ranch).—Bailey, Birds New Mexico, 1928, 173 (New Mexico).—American Ornithologists' Union, Check-list, ed. 4, 1931, 69, part.—Peters, Check-list Birds of World, i, 1931, 240, part.—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 242 (Sonora, Mexico).—Willett, Pacific Coast Avif., No. 21, 1933, 44 (sw. California; rare straggler from desert).—Rowley, Condor, xxxvii, 1935, 164, in text (Lower California; 3 nest records); xxxviii, 1936, 219, in text (Riverside County, Calif.; eggs, specs.).—Monson, Condor, xxxviii, 1936, 176, in text (Papago Indian Reservation, Ariz.; occas.).—Abbott, Auk, lviii, 1941, 418, in text (Guaymas, Sonora; rec.).—Allan and Sime, Wils. Bull., lv, 1943, 32 (Texas Panhandle, Palo Duro Canyon; also 50 miles nw. Carlsbad, N. Mex.).

Parabuteo harrisi Sharpe, Hand-list, i, 1899, 247, part (Lower California).

Buteo harrisi Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 56, part (Arizona, Lower California, Sonora, Sinaloa).

Buteo lineatus elegans Bryant, Proc. California Acad. Sci., ser. 2, ii, 1889, 280, part (nesting San Quintín; seen from Ensenada to El Rosario, Lower California).

Parabuteo unicinctus superior van Rossem, Trans. San Diego Soc. Nat. Hist., ix, 1942, 377 (Laguna Dam, Lower Colorado River, Imperial County, Calif.; descr.; meas.; crit.); Condor, xlv, 1943, 121 (Lower California; San José Island).—American Ornithologists' Union, Auk, lxii, 1945, 439 (nomencl.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 104 (California; common res.).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 58 (Sonora; common res.).

Genus LEUCOPTERNIS Kaup

Leucopternis Kaup, Isis, 1847, 198, 210, 954. (Type, as designated by Gray, 1849, *Falco melanops* Latham.)

Leucoptcrius (emendation) Giebel, Thesaurus Orn., iii, 1877, 814.

Leucopternus (lapsus) Stone, Proc. Acad. Nat. Sci. Philadelphia, 1913, 195.

Pseudastur Blyth, Journ. Asiat. Soc. Bengal, xix, 1850, 317. (Type, by original designation, *Falco pœcilonotus* Cuvier.)

Morphnarchus Ridgway, Smiths. Misc. Coll., lxxii, No. 4, 1920, 2. (Type, by original designation, *Leucopternis princeps* Sclater.)
Urubitinga Reichenow, Die Vögel, i, 1913, 390, part.

Rather small to rather large Buteones (wing about 182 to 419 mm.) with middle toe not more than half as long as tarsus, or slightly more than half as long, nostril obliquely oval (vertically oval in *L. semiplumbea*) and with coloration black and white, slate color and white, or mostly plain slate color (the tail black and white in varying relative proportion), and with young, where known, not essentially, if at all, different in coloration from adults.

Bill moderate to rather large in size, similar in form to that of species of *Buteo;* the culmen (chord) usually less than one-third as long as tarsus; nostril usually obliquely oval or subpyriform (more nearly vertical than horizontal), quite vertical in *L. semiplumbea* and *L. princeps,* regularly decurved from base, the maxillary unguis rather long; depth of bill at base of culmen from a little less than, to slightly more than, two-thirds the chord of culmen, its width at same point a little less than three-fifths its depth; gonys slightly convex, ascending terminally, not prominent basally; maxillary tomium slightly convex posterior to postunguinal concavity; length of cere on top a little less than two-thirds the chord of culmen, the upper outline nearly straight but moderately ascending basally, where slightly convex, the anterior outline convex in front of nostril but slightly concave and nearly vertical below; wing relatively rather short to moderately long, much rounded, the longest primary exceeding distal secondary by about one-fifth (*L. semiplumbea*) to one-third (*L. plumbea*) the length of wing; third, third and fourth, or fourth and fifth primaries longest, the first shorter than tenth to equal to ninth; inner webs of four to five outer primaries emarginated or sinuated, usually the four outer emarginated, the fifth sinuated. Tail usually between half and two-thirds as long as wing (two-thirds as long in *L. semiplumbea* and *L. plumbea*), its tip usually slightly rounded (truncated in *L. semiplumbea* and *L. schistacea,* slightly emarginate in *L. princeps*). Tarsus less than one-fourth (*L. lacernulata*) to more than one-third (*L. semiplumbea*) as long as wing, the upper portion feathered in front and on sides for less than one-third to more than one-third (*L. semiplumbea*) its length, stout, the acrotarsium and planta tarsi each with a single continuous series of transverse scutella; middle toe less to more than half as long as tarsus (about half as long in *L. melanops;* more than half as long in *L. princeps*); outer toe decidedly longer than inner toe, extending to or beyond middle of penultimate phalanx of middle toe, the inner extending nearly to middle of same phalanx, except in *L. ghiesbreghti,* in which it does not extend beyond articulation of second and third phalanges; hallux as long as to much shorter than inner toe, except in

L. ghiesbreghti, its claw longer than the digit (except in *L. semiplumbea* in which shorter); claws moderate in size and curvature, acute (not very acute in *L. princeps*) distinctly graduated in size, that of outer toe about two-thirds to nearly three-fourths as long as that of hallux.

Plumage and coloration.—Plumage in general moderately full and compact; loral region rather sparsely bristled (especially in *L. princeps* and *L. semiplumbea*,[78] more densely so in *L. lacernulata*); feathers of thigh short, not forming distinct "pantalettes," except in *L. ghiesbreghti* and *L. princeps*. Coloration very variable, but always a combination of black and white, or black, gray, and white, the young essentially like adults.

Range.—Continental tropical America, from southern Mexico to southeastern Brazil, Peru, and Ecuador. (About 8 species.)

KEY TO THE NORTH AND MIDDLE AMERICAN FORMS OF LEUCOPTERNIS

a. Abdomen white abundantly and narrowly barred with blackish (Costa Rica to Panama)---------- **L. princeps princeps**, ad. (p. 387)

aa. Abdomen white or gray, but not barred with black.

b. Entire underparts gray.

c. Thighs distinctly barred with white; abdomen slightly mottled with white (c. Panama to Ecuador)------- **L. plumbea**, young, (p. 386)

cc. Thighs indistinctly barred with white; abdomen not mottled with white (c. Panama to Ecuador)---------- **L. plumbea** ad. (p. 385)

bb. Underparts white.

c. Top of head and entire upperparts deep slate gray: (Honduras to Ecuador).

d. Throat with black shaft lines--- **L. semiplumbea**, young (p. 384)

dd. Throat with no black shaft lines--- **L. semiplumbea**, ad. (p. 383)

cc. Top of head and upperparts of body (except wings and tail) practically entirely white.

d. The greater upper wing coverts pure white (s. Mexico to Guatemala and Brit. Honduras).

Leucopternis albicollis ghiesbreghti, ad. (p. 381)

dd. The greater upper wing coverts with some black, tipped with white.

e. The dark areas on the inner primaries and the secondaries fuscous brownish, obscurely but definitely barred with blackish (Honduras to Panama).

f. Crown and occiput with fine blackish or brownish streaks; lesser upper wing coverts much spotted with black and white.

L. albicollis costaricensis, juv. (p. 380)

ff. Crown and occiput unstreaked; lesser upper wing coverts with little or no black.

g. Tertials or innermost secondaries barred or otherwise marked with blackish-- **L. albicollis costaricensis**, imm. (p. 380)

gg. Tertials or innermost secondaries wholly white or very nearly so------ **L. albicollis costaricensis**, ad. (p. 379)

ee. The dark areas on the inner primaries and secondaries slate black to black, not barred with darker or very indefinitely and faintly so.

f. Back of head with fine brownish-blackish lines; lesser upper

[78] The orbital region is almost nude in *L. princeps* and *L. plumbea*.

wing coverts spotted black and white (s. Mexico to Guatemala and Brit. Honduras).

L. albicollis ghiesbreghti, juv. (p. 382)

ff. Back of head unstreaked; lesser upper wing coverts with little or no black (s. Mexico to Guatemala and Brit. Honduras).

L. albicollis ghiesbreghti, imm. (p. 382)

LEUCOPTERNIS ALBICOLLIS COSTARICENSIS Sclater

COSTA RICAN WHITE HAWK

Adult (sexes alike).—Entire head and body above and below pure white, except the lores and circumocular areas, which are almost nude bluish gray; skin sparsely clothed with fine blackish bristles; upper

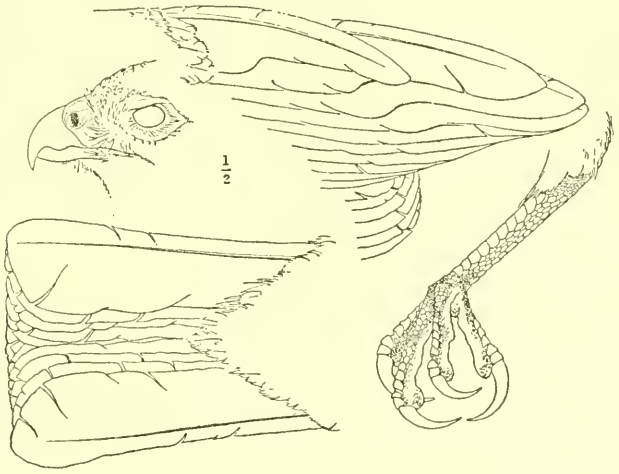

FIGURE 24.—*Leucopternis semiplumbea.*

median and lesser and under wing coverts pure white, occasionally some of the lesser upper coverts near the bend of the wing with a little blackish in the form of shaft streaks; greater upper coverts blackish slate tipped with white; the primaries blackish slate, the inner webs white basally distal to the emargination, level of the outer ones, the outer webs with a small, usually concealed, white-barred area at the base of the outermost primary; the blackish slate area on all but the outer three primaries barred with black; the inner ones broadly, the outer ones narrowly tipped with white; secondaries deep neutral gray to blackish slate barred with black and very broadly tipped with white and with broad white margins on the inner webs, the width of these margins increasing from the carpal joint inward, and extending across both webs in the innermost secondaries which often have the blackish slate restricted to an elongated spot on the outer webs; rectrices white with a broad subterminal band of black, this band varying from 26–

36 mm., in width; iris rich dark brown with bluish-black pupil; cere horn blue; maxilla dark bluish black; mandible slate horn blue; inside of mouth bluish; feet banana yellow; claws bluish black.

Immature (sexes alike).—Similar to the adult but with lesser upper wing coverts somewhat more abundantly marked with blackish; the innermost secondaries, which are almost wholly white in very old birds, barred with blackish irregularly both in amount and in pattern; the outer webs of all the secondaries often with a little white in the barring; tail band averaging slightly broader (32–39 mm.).

Juvenal (sexes alike).—Similar to adult but with the top of the head with fine brownish or brownish black shaft streaks which become darker and broader on the occiput, and, to a lesser extent, on the auriculars also; some of the scapulars with fine blackish shaft streaks; the lesser and median upper wing coverts much streaked or barred with blackish or even solid black basally, especially those near the bend of the wing; those farthest from the bend, that is, the inner secondary coverts usually pure white or at most with very fine blackish shaft streaks; the inner secondaries strongly barred with blackish; the outer webs of the secondaries with some whitish on the paler bars; tail band broader (40–52 mm.).

Natal down.—Not known.

Adult male.—Wing 325–368 (350.5); tail 221–244 (227.2); culmen from cere 26–29 (27); tarsus 84–94 (89.7); middle toe without claw 36–44 (40.5 mm.).[79]

Adult female.—Wing 340–378 (361.7); tail 225–246 (232.4); culmen from cere 26–30 (27.9); tarsus 81–94 (87.7); middle toe without claw 38–44 (40.6 mm.).[80]

Range.—Resident from Honduras (Lancetilla and Segovia River); south through Nicaragua (Chontalas, Río Escondido, Matagalpa, Río Grande, San Emilio, and Lake Nicaragua); and Costa Rica; were found chiefly in the more humid portion of the eastern (Caribbean) lowlands in forested country, spreading northwestward to the northern part of Guanacaste, where less numerous (Jiménez, Caruillo, Naranjo, Reventazón, Bonilla, La Vijagua, Tenorio, Guácimo, Guápiles, El Hogar, Miravalles; doubtfully recorded from Cerro de la Candelaria); to eastern Panamá (Cordillera de Tolé; Calovévora; Chitra; Bogaba, Veraguas; Lion Hill; Almirante; Boquete Trail; Obaldia; Permé Caña, Darién; Barro Colorado, C. Z.).

Type locality.—Carillo, Costa Rica.

Buteo ghiesbreghtii Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 289 (Panama).—Salvin, Proc. Zool. Soc. London, 1867, 158 (Cordillera de Tolé, Panama).

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[79] Twenty-nine specimens from Panama, Costa Rica, Nicaragua, and Honduras.

[80] Fourteen specimens from Panama, Costa Rica, Nicaragua, and Honduras.

Asturina ghiesbrechtii Schlegel, Mus. Pays-Bas, ii, No. 5, livr. 1, 1862, 11, footnote, part (monogr.); No. 36, livr. 10, 1873, 104, part.

Leucopternis ghiesbreghti Sclater and Salvin, Exotic Orn., pt. 8, 1868, 121, part; Nom. Av. Neotr., 1873, 119, part (Panama; Central America, part).—Salvin, Proc. Zool. Soc. London, 1870, 215 (Calovevora, Chitra; and Bugaba, Veraguas, Panama); Ibis, 1872, 242, part, 323 (Chontales, Nicaragua; monogr.).—Gurney, Ibis, 1876, 470, in text, part (crit.; variations of plumage); Cat. Birds Prey, 1894, 25, part.—Zeledon, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Jiménez, Costa Rica).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 521 (Río Escondido, Nicaragua; habits).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 82, part (Segovia River, Honduras, and Matagalpa, Río Grande, San Emilio, Chontales, Lake Nicaragua, and Río Escondido, Nicaragua; Cerro de la Candelaria; Naranjo, Reventazón, Carrillo, and Jiménez, Costa Rica; Bugaba, Calovevora, Chitra, Cordillera de Tolé, and Lion Hill, Panama).—Carriker, Ann. Carnegie Mus., vi, 1910, 462 (Bonilla, La Vijágua, Tenório, Guácimo, Guápiles, El Hogár, and Miravalles, Costa Rica; habits).—Swann, Monogr. Birds Prey, i, 1930, 467, part (monogr.).

Leucopternis ghiesbrechti Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 174, part (Panama).—Sharpe, Hand-list, i, 1899, 259, part.—Bangs, Proc. New England Zool. Club, iii, 1902, 20 (Bogaba, Panama).

Urubitinga ghiesbreghti Boucard, Proc. Zool. Soc. London, 1878, 44 (Naranjo de Cartago, Costa Rica).

Leucopternis ghiesbreghti costaricensis Sclater, Bull. Brit. Orn. Club, xxxix, 1919, 76 (Carrillo, Costa Rica; coll. Brit. Mus.).—Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., ed. 2, 1922, 100.—Sturgis, Field Book Birds Panama Canal Zone, 1928, 136 (descr.; habits; Panama).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 449 (Almirante; Panama; colors of soft parts).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 417 (Lancetilla, Honduras; food habits); Bull. Mus. Comp. Zool., lxxi, 1931, 310 (Almirante and Boquete Trail, Panama).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Obaldia, Panama).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 212 (ne. Nicaragua; spec.; colors).

Leucopternis ghiesbrechti costaricensis Griscom, Bull. Mus. Comp. Zool., lxix, 1929, 158 (Cana, Darién, Panama).—Heath, Ibis, 1932, 482 (Barro Colorado Island, Panama).

Leucopternis albicollis costaricensis Peters, Check-list Birds of World, i, 1931, 241 (distr.).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 299 (throughout Panama).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 43 (Paracoté, Azuero Peninsula, Panama; spec.).—Dugand, Caldasia, No. 3, 1941, 56 (Colombia; Río Juradó, Choco; spec.).—Lehmann, Caldasia, No. 7, 1943, 187 (Guaícaramo; Boyacá; and Río Jurado, Chocó, Colombia; spec.; meas., plum.).

LEUCOPTERNIS ALBICOLLIS GHIESBREGHTI (Du Bus)

Mexican White Hawk

Adult (sexes alike).—Similar to that of *Leucopternis albicollis costaricensis*, but with the dark area on the inner primaries greatly reduced to mere irregular bars and splotches on the outer webs; sometimes pure white; the primaries with the outer webs, as well as the inner webs, basally white; all the wing coverts (including the greater

upper ones) white, tail band reduced to a series of large transverse spots, one on each rectrix extending nearly across the feather but, in fresh feathers, laterally narrowly edged with white, the spots 25–30 mm. wide; iris chrome yellow; cere plumbeous; feet Naples yellow; claws blackish.

Immature (sexes alike).—Similar to the adult but with the dark area on the secondaries more extensive and darker than in *Leucopternis albicollis costaricensis* and, consequently, less noticeably if at all, barred with darker black; the greater upper wing coverts deep blackish slate tipped with white; some of the lesser upper wing coverts near the bend of the wing sparingly marked with blackish.

Juvenal (sexes alike).—Similar to that of *Leucopternis albicollis costaricensis* except that the coronal and occipital streaks are paler, more brownish, less blackish, and that the extensive dark area on the remiges is not or only faintly barred with darker black and that the innermost secondaries are pure white or nearly so, and the median and lesser upper wing coverts only very sparingly marked with blackish.

Natal down.—Not known.

Adult male.—Wing 336–366 (353.5); tail 221–235 (225.3); culmen from cere 24–27 (25.7); tarsus 80–85 (82.7); middle toe without claw 35–45 (39.2 mm.).[81]

Adult female.—Wing 362–388 (375); tail 222–234 (226.8); culmen from cere 26.5–29 (27.5); tarsus 84–87 (84.6); middle toe without claw 38–44 (41.6 mm.).[82]

Range.—Resident from southern Mexico from Veracruz (San Andrés Tuxtla, Mirador, Huatusco, Uvero, Playa Vicente, Atoyac) and Oaxaca (Chimalapas) south to British Honduras (Cayo and Toledo district) and Guatemala (Choctum, Medio Monte, Savana Grande, Aguná, Finca Sepacuité, Panzós, Petén, Secanquim, Finca Sepur, Alta Verapaz, and Carolina).

Type locality.—"Hacienda Mirador, several leagues from Vera Cruz," Mexico.

(?) *Falco conciliator* Shaw, Gen. Zool., vii, 1809, 77 ("Louisiana").

Buteo ghiesbreghti Du Bus, Esq. Orn., 1845, pl. 1 ("Hacienda Mirador, several leagues from Vera Cruz," Mexico; orig. descr.; characters).—Strickland, Ornith. Syn., 1855, 36 (syn.).—Sclater, Proc. Zool. Soc. London, 1857, 227 (San Andrés Tuxtla, Veracruz).

Buteo ghiesbreghtii Hartlaub, Journ. für Orn., 1853, 44 (Guatemala).—Sclater and Salvin, Ibis, 1859, 217, part (Pacific slope, Central America).—Gray Hand-list, i, 1869, 8, No. 71 (Mexico).—Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region of Veracruz).

Leucopternis ghiesbreghti Bonaparte, Rev. Mag. Zool., vi, 1854, 533.—Sclater and Salvin, Exotic Orn., pt. 8, 1868, 121, part (Mexico); Nom. Av. Neotr.,

[81] Six specimens from Mexico (Veracruz), Guatemala, and British Honduras.

[82] Five specimens from Guatemala and British Honduras.

1873, 119, part (Mexico; Central America, part).—Salvin, Ibis, 1872, 242, part (monogr.).—Gurney, Ibis, 1876, 470, in text, part (crit.; variations of plumage); List Diurn. Birds Prey, 1884, 75, part (crit. as to spelling of specific name); Cat. Birds Prey, 1894, 25, part.—Sclater, Bull. Brit. Orn. Club, xxxix, 1919, 76, in text (Atoyac, Veracruz; Chimalapa, Oaxaca; Choctum, Guatemala; Brit. Honduras; Honduras).

Leucopternis ghiesbrechti Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 174, part (Mirador, Veracruz; Guatemala; monogr.).—Sharpe, Hand-list, i, 1899, 259, part (s. Mexico; Central America, part).—Swann, Synopt. List Accip., pt. 2, 1909, 59, part (s. Mexico).

Leucopternis gheisbrechti Ridgway, Proc. U. S. Nat. Mus., x, 1888, 572 (Río Segovia, Honduras).

Leucopternis ghiesbreghti Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 82, part (Mirador, Huatusco, Uvero, San Andrés Tuxtla, Playa Vicente and Atoyac, Veracruz; Chimalapa, Oaxaca; Choctum, Medio Monte Savana Grande, and Aguna, Guatemala).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Gatun, Panama Canal Zone).—Swann, Monogr. Birds Prey, i, 1930, 467, part (monogr.).

Leucopternis ghiesbreghti ghiesbreghti Swann, Synop. Accip., ed. 2, 1922, 100 (s. Mexico; Vera Paz, Guatemala; Honduras).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 158 (distr. Guatemala).

Leucopternis ghiesbrechti ghiesbrechti Bangs and Peters, Bull. Mus. Comp. Zool., lxvii, 1927, 473 (Presidio and Motzorongo, Veracruz; Mexico).

Tachytriorchis ghiesbrechti Bonaparte, Compt. Rend., xli, 1855, 651.

Asturina ghiesbrechtii Schlegel, Mus. Pays-Bas, ii, No. 5, livr. 1, 1862, 11, footnote, part (monogr.); No. 36, livr. 10, 1873, 104, part.

Urubitinga ghiesbrechti Sharpe, Cat. Birds Brit. Mus., i, 1874, 217, part (Mexico).—Boucard, Liste Ois. récol. Guat., 1878, 19 (Guatemala).

Urubitinga ghiesbreghti Rovirosa, La Naturaleza, vii, 1887, 376 (Tabasco; Río Macuspana).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Veracruz, Mexico).

Leucopternis albicollis ghiesbreghti Peters, Check-list Birds of World, i, 1931, 241.—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; Lancetilla: Segovia River).—van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, No. 27, 1935, 16 (Uaxactún and Chuntuqui, Petén, Guatemala; spec.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 28 (Mexico: Veracruz and Tabasco).

LEUCOPTERNIS SEMIPLUMBEA Lawrence

Semiplumbeous Hawk

Adult (sexes alike).—Forehead, crown, top and sides of head, except for the bare lores and circumocular areas, entire upperparts of body, upper wing coverts, and remiges varying from deep neutral gray to dark neutral gray and to slate color, but usually of one shade throughout in any one specimen except the lesser upper wing coverts usually somewhat darker and the top of head sometimes slightly darker than the rest of the upperparts; the upper tail coverts definitely darker, dusky neutral gray; all the remiges white basally on the inner web, the inner primaries and the secondaries with incomplete dusky bars extending from the dark area out into the white; four outer-

most primaries definitely emarginated on the inner web, the fifth sinuated; wing very rounded, the longest primaries (third to fifth from the outside) exceeding the longest secondary by less than 15 mm.; all the rectrices black crossed by a narrow (10 mm. wide) band of white about two-thirds of their length from the base, this white band becoming wider on the inner webs of the three outer (lateral) pairs of rectrices, occasionally a second incomplete band near the base; entire underparts pure white except for a few very fine, faint plumbeous shaft streaks on the sides of the throat and breast; iris golden yellow; cere, rictus, and base of mandible bright orange red to deep orange-yellow; basal two-thirds of mandible and inferolateral angle of maxilla pale yellow, the rest of the bill slate black; feet deep orange to reddish orange, claws black.

Young (sexes alike) [83].—Similar to the adult but with the sides of the throat and the entire breast with narrow deep neutral gray shaft stripes; occasionally with the inner webs of the lateral (outermost) pair of tail feathers largely whitish basally, washed terminally with pale fuscous and incompletely or irregularly banded with fuscous black; the under side of the remiges barred on the terminal half.

Natal down.—Not known.

Adult male.—Wing 165–184 (179); tail 127–137 (132.4); culmen from cere 18–20 (19.2); tarsus 55–64 (60.1); middle toe without claw 31–33 (31.8 mm.).[84]

Adult female.—Wing 183–202 (195.2); tail 126–148 (135.7); culmen from cere 18–21 (20); tarsus 57–66 (61.6); middle toe without claw 31–37 (33.8 mm.).[85]

Range.—Resident in the Tropical zone from southern Honduras (Segovia River); south probably through Nicaragua (no definite records found); Costa Rica (Valza, Old Harbor, Talamanca, El Hogar, Guácimo, Cariblanca de Sarapiqué, Rio Sicsola); Panama (Veraguas, Laguna de Pita, Punta de Sabana, Almirante, Permé, Ranchon), to western Colombia (Remédios, Antioquia, Bagadó, and Los Cisneros), and to northwestern Ecuador (Paramba and San Javier).

Type locality.—Caribbean slope of the Isthmus of Panama along the line of the railroad.

Leucopternis semiplumbeus Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 288 (Panama; coll.).; ix, 1868, 133 ("Val," i. e., Valza, Costa Rica).—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).—Ridgway, U. S. Geol.

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[83] In the present state of our knowledge of this species it is not possible to tell whether there is an immature plumage distinct from the juvenal one. We can only tell adults from younger birds.

[84] Seven specimens from Panama and Costa Rica.

[85] Fourteen specimens from Panama, Costa Rica, and Nicaragua.

and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 177 (monogr.; Old Harbor and Talamanca, Costa Rica); Proc. U. S. Nat. Mus., x, 1888, 592 (Río Segovia, Honduras).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Talamanca, Costa Rica).—Swann, Synopt. List Accip., pt. 2, 1919, 60; Synop. Accip., ed. 2, 1922, 102.

Leucopternis semiplumbea Sclater and Salvin, Exotic Orn., pt. 8, 1868, 121, pl. 61; Nom. Av. Neotr., 1873, 119 (Costa Rica; Panama); Proc. Zool. Soc. London, 1879, 540 (Remédios, Antioquia, Colombia).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 145 (Valza, Costa Rica).—Salvin, Ibis, 1872, 243 (monogr.).—Gurney, Ibis, 1876, 475, in text (crit.; Veragua; Antioquia, Colombia); List Diurn. Birds Prey, 1884, 76; Cat. Birds Prey, 1894, 25.—Sharpe, Hand-list, i, 1899, 259.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 84 (Río Segóvia, Honduras; Valza and Talamanca, Costa Rica; Veraguas, Laguna de Pita, and Punta de Sabana, Panama; Colombia).—Hartert, Nov. Zool., ix, 1902, 605 (Paramba and San Javier, nw. Ecuador).—Carriker, Ann. Carnegie Mus., vi, 1910, 463 (Guácimo, Cariblanco de Sarapiqué, Río Sicsola, and El Hogar, Costa Rica; habits).—Brabourne and Chubb, Birds South Amer., i, 1912, 69 (Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 247 (Bagado and Los Cisneros, nw. Colombia; crit.); Bull Amer. Mus. Nat. Hist., lv, 1926, 235 (nw. Ecuador).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama; Canal Zone).—Swann, Monogr. Birds Prey, i, 1930, 473 (monogr.).—Peters, Check-list Birds of World, i, 1931, 242 (distr.); Bull. Mus. Comp. Zool., lxxi, 1931, 310 (Almirante, Panama).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Ranchon, Panama); lxxviii 1935, 300 (Caribbean lowlands of Panama; 6 records).

Buteo semiplumbeus Gray, Hand-list, i, 1869, 9, No. 73.

Urubitinga semiplumbea Sharpe, Cat Birds Brit. Mus., i, 1874, 220 (Panama; Costa Rica).

LEUCOPTERNIS PLUMBEA Salvin

Plumbeous Hawk

Adult (sexes alike).—Entire head, except for the bare lores and circumocular areas, and entire body above and below, slate gray to slate, the feathers with very fine, darker shaft lines of dark neutral gray; becoming dusky neutral gray to black on the upper and under tail coverts; upper wing coverts dark neutral gray to dusky neutral gray; remiges blackish, washed with pale fuscous on the inner webs and white basally on the inner webs, the inner webs crossed by six to eight bars of fuscous-black, the bars extending over the outer webs as well in the secondaries; five outermost primaries sinuated on the inner web; outermost primary about the same length as the secondaries, much (60–65 mm.) shorter than the longest primary (fourth or fifth from outside); thighs faintly barred with white; rectrices black crossed by a narrow white band about two-thirds of their length from the base, and with concealed white spots near the base, and narrowly tipped with white; under wing coverts and axillars white sparsely flecked with dusky grayish fuscous; cere, circumocular area, and feet orange; claws and bill black.

Young (sexes alike in all probability, but only one seen—a female).—Similar to adult but with the thighs distinctly barred white and dark neutral gray, the abdomen indistinctly mottled and flecked with whitish.

Natal down.—Not known.

Adult male.—Wing 223–238 (227.3); tail 132–150 (141); culmen from cere 20.5–22.5 (21.6); tarsus 65–73 (69.6); middle toe without claw 30.5–34 (33.5 mm.).[86]

Adult female.—Wing 233–245 (237. 8); tail 139–157 (136.9); culmen from cere 21–22.5 (21.5); tarsus 66–74 (69.8); middle toe without claw 33–34 (33.8 mm.).[87]

Range.—Resident in the Tropical Zone from eastern Panama (Veraguas, Permé) through western Colombia (Bagadó, Barbacoas) to western Ecuador (Quito, Sarayacu, Río de Oro, Paramba, San Javier, Mindo); apparently uncommon throughout its range.

Type locality.—Ecuador.

Leucopternis plumbea Salvin, Ibis, 1872, 240, pl. 8, 243 (Ecuador; orig. descr.; crit.; monogr.).—Sclater and Salvin, Nom. Av. Neotr., 1873, 119 (Ecuador).—Gurney, Ibis, 1876, 475 (Veraguas); List Diurn. Birds Prey, 1884, 76; Cat. Birds Prey, 1894, 25.—Sharpe, Hand-list, i, 1899, 258 (Panama to Ecuador).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 84 (Veraguas, Panama, Quito and Sarayacu, Ecuador).—Hartert, Nov. Zool., ix, 1902, 605 (Paramba and San Javier, Ecuador).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 234 (Río de Oro, Mindo, Ecuador).—Peters, Check-list birds of World, i, 1931, 242 (distr.).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Panama); lxxviii, 1935, 300 (Panama-Veraguas; e. Darién).

Urubitinga plumbea Sharpe, Cat. Birds Brit. Mus., i,1874, 216 (Panama, Ecuador).—Brabourne and Chubb, Birds South Amer., i, 1912, 69 (Ecuador; w. Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 247 (Bagado and Barbacoas, Colombia).

Urubitinga (?) *plumbea* Ridgway, Bull. U. S. Geol. and Geogr. Terr., ser. 2, No. 2, 1876, 172 (monogr.).

Leucopternis schistacea plumbea Swann, Synopt. List Accip., pt. 2, 1919, 59; Synop. Accip., ed. 2, 1922, 99 (Ecuador to Panama); Monogr. Birds Prey, i, 1930, 464 (monogr.).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxii, No. 1, 1945, 52, in text (w. Panama to w. Ecuador; meas.).

Leucopternis schistacea Dugand and Borrero, Caldasia, iv, 1946, 139 (Colombia; Leticia; spec.).

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[86] Six specimens from Ecuador (4), Colombia (1), and Panama (1): The single Panamanian bird is the largest of the series, wing 238 as against a maximum of 229 mm. in Ecuadorian or Colombian specimens.

[87] Four specimens, three from Colombia, one from Panama. The Panamanian bird is the largest, wing 245 as against a maximum of 238 mm. for Colombian birds.

LEUCOPTERNIS PRINCEPS PRINCEPS Sclater

PRINCE HAWK

Adult (sexes alike).—Entire head (except for the bare lores and circumocular areas), throat, upper breast, entire upperparts of body, and upper wing coverts plumbeous-black, each feather edged with slate in fresh plumage, the bases of the feathers of the crown and occiput pure white, this color being sometimes exposed a little in places; remiges blackish slate becoming whitish on the basal half of the inner webs, which are barred and mottled with fuscous or grayish chaetura drab, the innermost secondaries and the long scapulars with broad white bars which are sometimes exposed in skins; the five outer primaries somewhat sinuated, the fourth (from outside) the longest, then the third, fifth, sixth, second; the first (outermost) not exceeding the longest secondaries; rectrices deep black crossed by a narrow white band at about the middle of their exposed portion, and anterior to this by narrow and less complete bands of the same (usually hidden in a dorsal view in the closed tail); lower breast, abdomen, sides, flanks, thighs, and under tail and wing coverts white narrowly barred with black; iris, dark blue, cere orange, bill leaden at tip, olive basally, feet yellow.

Young.—Unknown.

Adult male.—Wing 364–367 (365.3); tail 210–223 (218); culmen from cere 29.5–31 (30.1); tarsus 96–104 (99.3); middle toe without claw 42–49 (45.3 mm).[88]

Adult female.—Wing 380–388; tail 225, 225; culmen from cere 32, 32; tarsus 97–98; middle toe without claw 41–45 mm.[88]

Range.—Resident, and apparently very rare, from Costa Rica (Tucurriqui, La Hondura, Cariblanco de Sarapiquí); to Panama (Boquete Trail); apparently a denizen of mountain forests at altitudes of 4,000–5,000 feet.

Type locality.—Costa Rica.

Leucopternis princeps SCLATER, Proc. Zool. Soc. London, 1865, 429, pl. 24 (mountains of Costa Rica; coll. O. Salvin).—SCLATER and SALVIN, Exotic Orn., pt. 8, 1868, 122; Nom. Av. Neotr., 1873, 119.—LAWRENCE, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (Tucurriqui, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 368 (Costa Rica).—SALVIN, Ibis, 1872, 243 (monogr.).—RIDGWAY, U. S. Geol. and Geog. Surv. Terr., ser. 2, Bull. 2, 1876, 178 (monogr.); Proc. U. S. Nat. Mus., vi, 1884, 415 (Costa Rica).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—GURNEY, Cat. Birds Prey, 1894, 25, 32; List Diurn. Birds Prey, 1884, 75.—SHARPE, Hand-list, i, 1899, 259, part.—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1900, 83 (Tucurriqui, Costa Rica).—HARTERT, Nov. Zool., ix, 1902, 605, in part (Costa Rica; Cebago Island; crit.).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 463 (Cariblanco de Sarapiqué, La Hondura, and Tuccurriqui,

[88] Three males, two females from Costa Rica and Panama.

Costa Rica).—Swann, Synopt. List Accip., pt. 2, 1919, 60, in part; Synop. Accip., ed. 2, 1922, 102, part; Monogr. Birds Prey, i, 1930, 474, part (monogr.).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 449 (Boquete Trail, Panama; spec.; colors of soft parts).—Peters, Check-list Birds of World, i, 1931, 242, part (distr.; Costa Rica; Panama).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 300 (Panama: Caribbean slope of Volcán de Chiriquí).

Leucopternis princeps princeps Friedmann, Auk, lii, 1935, 30 (crit.; distr.; meas.).
Buteo princeps Gray, Hand-list, i, 1869, 9, No. 72.
Urubitinga princeps Sharpe, Cat. Birds Brit. Mus., i, 1874, 220 (Costa Rica).
Morphnarchus princeps Ridgway, Smiths. Misc. Coll., lxxii, No. 4, 1920, 2.

Genus HYPOMORPHNUS Cabanis

Urubitinga Lesson, Rev. Zool., ii, 1839, 132; Écho du Monde Savant, sér. 2, vii, 1843, 14. (Nomen nudum!)
Urubitinga Lafresnaye, Dict. Univ. Hist. Nat., ii, 1843, 786. (Type, by tautonymy, "L'Aigle—Autour Urubitinga de Cuvier"=*Falco urubitinga* Gmelin.)
Urubutinga (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 29.
Urubitingua (emendation) Bonaparte, Compt. Rend., xxxvii, 1853, 809.
Urutitinga (error typog.) Ridgway, Proc. U. S. Nat. Mus., x, 1888, 592.
Urobitinga (lapsus) Bangs, Proc. New England Zool. Club, iii, 1902, 20.
Orubitinga (emendation?) Gundlach, Journ. für Orn., 1862, 188.
Hypomorphnus Cabanis, Arch. für. Naturg., x, pt. 1, 1844, 263. (Type, by original designation, *Falco urubitinga* Gmelin.)
Hypomorphinus (emendation) Gray, Gen. Birds, i, 1845, 14.
Hypomorphus (emendation) Bonaparte, Rev. Mag. Zool., ser. 2, vi, 1854, 537.
Hipomorphnus (emendation) Gundlach, Anal. Soc. Esp. Hist. Nat., ii, 1873, 99.

Large long-legged round-winged Buteonidae (wing about 330–450 mm.) with five outer primaries sinuated on inner webs, middle toe less than half as long as tarsus, culmen longer than claw of hallux, the adults plain black or slate-black with one or more broad white bands across tail.

Bill rather long, the distance from base of cere to tip of maxilla equal to or somewhat greater than length of middle toe, its depth at base of culmen equal to about two-thirds the length (chord) of culmen and nearly two-fifths greater than its width at same point; culmen regularly but not abruptly decurved from base, the tip of maxilla forming a rather long unguis; gonys slightly less than half as long as culmen, slightly to very slightly convex, moderately ascending terminally; maxillary tomium with a very slight median convexity; rictus slightly but decidedly anterior to anterior angle of eye; cere relatively long, its length on top equal to half the length of culmen, its upper outline faintly to decidedly convex proximally, its anterior outline distinctly convex for upper half and concave for lower half; nostril rather large, nearly circular. Wing moderately long, but primaries abbreviated, the longest exceeding distal secondary by about one-fourth the length of wing; fourth and fifth primaries longest, the second shorter than seventh, the first a little longer than tenth;

inner webs of five outer primaries rather distinctly sinuated. Tail more than half (but less than three-fifths) as long as wing, its tip truncate, or very slightly rounded. Tarsus less than one-fourth as long as wing to much more than one-fourth as long as wing and more than half as long as tail, both acrotarsium and planta tarsi with a

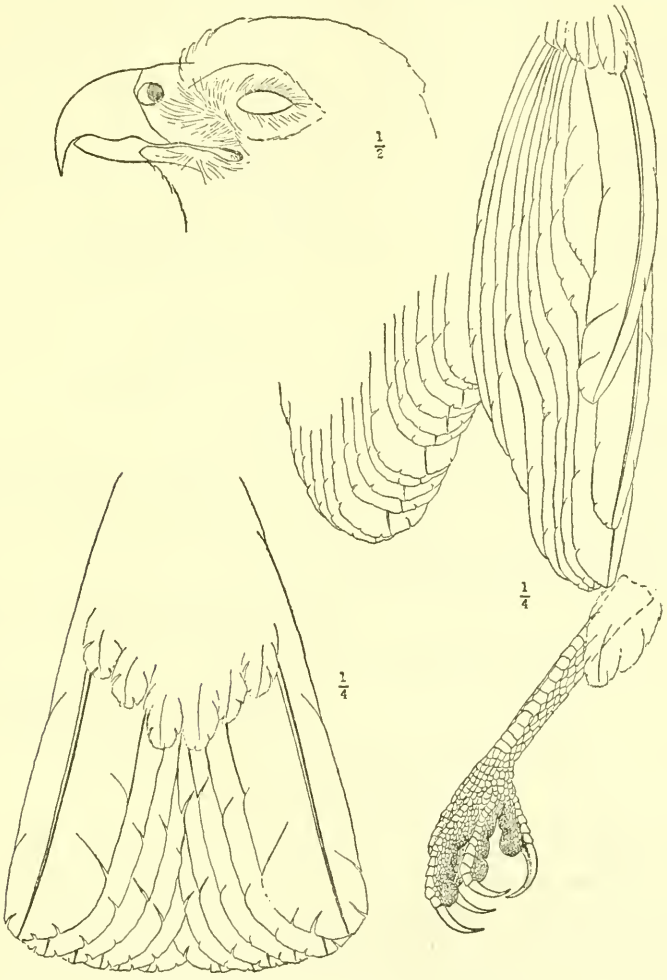

FIGURE 25.—*Hypomorphnus urubitinga.*

continuous single series of broad transverse scutella, less than the upper fourth of the acrotarsium feathered; middle toe less to much less than half as long as tarsus; outer toe extending nearly if not quite to distal end of third phalanx of middle toe, the inner to nearly the same point; hallux decidedly shorter than inner toe, its claw longer than the digit; claws moderate in size and curvature, broadly grooved

beneath, distinctly graduated in size, that of hallux about two-fifths longer than that of outer toe; web between basal phalanges of outer and middle toes distinct.

Plumage and coloration.—Plumage in general rather compact, the feathers distinctly outlined, those of head (especially on pileum) sublanceolate; feathers on outer side of thighs larger than those on inner side, but not forming a distinct "boot"; entire loral region practically nude, but with rather sparse small bristles, those of the upper anterior portion longer and recurved. Adults plain black, slaty black or dark slate color, the tail black, crossed by one or more broad bands of white and tipped with whitish. Young variegated above with blackish and ochraceous or buffy, beneath buffy or ochraceous striped with dusky, the thighs barred with the same, the tail with numerous narrow bands of blackish and light grayish intermixed with white.

Range.—Tropical America, from Mexico and Central America to Argentina, Paraguay, and Chile. (Monotypic.)

KEY TO THE SUBSPECIES OF HYPOMORPHNUS

a. Plumage, except for tail, practically wholly black.
b. Tail with two black bars, the subterminal one the wider of the two (Mexico to Panama)----------**H. urubitinga ridgwayi**, ad. (p. 390)
bb. Tail with only one black bar (a subterminal one) (e. Panama to Bolivia)----------**H. urubitinga urubitinga**, ad. (p. 393) [89]
aa. Plumage below buffy marked with fuscous-black.
b. Subterminal blackish band on rectrices very broad (40 mm. or more in width)----------**H. urubitinga urubitinga**, imm. (p. 394)
H. urubitinga ridgwayi, imm. (p. 391) [90]
bb. No very broad subterminal band on rectrices.
H. urubitinga urubitinga, juv. (p. 394)
H. urubitinga ridgwayi, juv. p. 391)

HYPOMORPHNUS URUBITINGA RIDGWAYI (Gurney)

MEXICAN URUBITINGA

Adult (sexes alike in color).—Entire head, except for the bare loreal area, and body, wings, and thighs uniform black with more or less of a slaty cast, especially on the neck, breast, and back; the under wing coverts and the thighs finely barred or spotted with whitish; the remiges indistinctly banded with dark slate; primaries decidedly exceeding the secondaries in length; the inner webs of the outer five or six pairs slightly sinuated, fourth or fifth quill longest, first shorter

[89] In southern South America (Paraguay, Argentina, etc.), there is another race, *Hypomorphnus urubitinga azarae*, distinguished from the nominate form only by its larger size.

[90] Young birds of these two races are not distinguishable with certainty. On the whole, young of the nominate race average slightly larger than those of *ridgwayi*.

than ninth; upper tail coverts white; rectrices whitish basally and at tip and with two wide black bands crossing them, otherwise white; iris dark brown; cere, lores, tarsi, and feet orange-yellow; bill black, bluish basally; claws black; skin of bristled preocular space slate.

Immature (sexes alike).—Entire head, nape, chin, and throat warm buff to capuchin buff, the top of the head and the nape and sides of the neck heavily streaked with tear-shaped black shaft streaks, the cheeks finely streaked with dark neutral gray; interscapulars and upper back and upper wing coverts fuscous-black to chaetura black, the upper wing coverts broadly edged and tipped (and scalloped) with ochraceous-tawny to pinkish cinnamon; the secondaries, dark hair brown banded with chaetura drab, the hair brown paling to pinkish buff and even to whitish basally and on the inner webs; primaries averaging more grayish, less brownish, than the secondaries, broadly tipped with chaetura black; the inner webs basally whitish barred with chaetura black; lower back and rump fuscous-black to chaetura black irregularly but abundantly barred with whitish; upper tail coverts similar but with very broad white tips; rectrices whitish with a very broad subterminal black band (40 mm. or more in width) and with four or five narrower black somewhat irregular bands; the whitish interspaces finly mottled with mouse gray; breast, abdomen, thighs, and under tail coverts warm buff to capuchin buff, the thighs and under tail coverts barred with black, the breast and abdomen heavily streaked with terminally greatly widening chaetura black shaft streaks; under wing coverts warm buff to capuchin buff streaked more or less with chaetura black.

Juvenal (sexes alike).—Similar to the immature plumage, but with the interscapulars and upper back more brownish, less blackish fuscous, and the rectrices hair brown to deep mouse gray, basally whitish, and crossed by 10–14 narrow chaetura black bands, the bands slightly margined on their distal sides with whitish; the subterminal band rather indistinct and slightly paler chaetura drab (less than 30 mm. in width); the tail feathers narrowly tipped with whitish.

Natal down.—Not known.

Adult male.—Wings 367–403 (376.4); tail 226–274 (243.3); culmen from cere 26–31 (28.8); tarsus 112–126 (116.4); middle toe without claw 44.5–49 (47.2 mm.).[91]

Adult female.—Wings 363–417 (388.8); tail 237–270 (248.5); culmen from cere 29–32 (30.3); tarsus 108–127 (116.4); middle toe without claw 45–50 (48.3 mm.).[92]

Range.—Tropical zone from southern Tamaulipas (Altamira) and Sonora (Alamos) south through Sinaloa (Mazatlán, Escuinapa, etc.),

[91] Eleven specimens from Mexico, British Honduras, Costa Rica, and Panama.

[92] Seven specimens from Mexico, Honduras, and Costa Rica.

Veracruz (San Andrés Tuxtla, Portrero, Mirador, Orizaba, etc.), Colima (Colima; Río Tupila), Oaxaca (Santa Efigenia, Barrio, Tehuantepec, Chivela), Yucatán (Meridá, Chablé, Quintana Roo, etc.), and Chiapas (Gineta Mountains, Tonalá) to Guatemala (Cobán, San Gerónimo, Hacienda California, Chimoxan, Savana Grande), British Honduras (Cayo), Honduras (Río Segovia), Nicaragua (Río Escondido, Realejo, Sucuyá, San Emilio, Lake Nicaragua, Momotombo San Carlos), El Salvador (Lake Olomega, Colima, Hacienda Zapotitán, Barra de Santiago, Lake Chammico, Río San Miguel, Puerto del Triunfo), Costa Rica (San José, Sipurio, La Palma de Nicoya, Agucate, San Mateo, Pozol Azul de Pirris, Miravalles, Punta Mala, La Vizagua, Cerro de Santa María, Guácimo, El Hogar, etc.), and Panama (Almirante).

Type locality.—Guatemala.

Morphnus urubitinga (not *Falco urbitinga* Gmelin) Sclater, Proc. Zool. Soc. London, 1857, 227 (San Andrés Tuxtla, Veracruz).

Urubitinga zonura (not *Falco zonurus* Shaw) Sclater and Salvin, Ibis, 1859, 215 (Guatemala); Proc. Zool. Soc. London, 1867, 280 (Bluefields River, i. e., Río Escondido, Nicaragua); Nom. Av. Neotr., 1873, 119, part (Mexico; Central America).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 133 (San José, Costa Rica); ix, 1869, 207 (Mérida, Yucatán); Mem. Boston Soc. Nat. Hist. ii, 1874, 302 (Mazatlán, Sinaloa; habits); U. S. Nat. Mus. Bull. 4, 1875, 42 (Santa Efigenia, Barrio, and Tehuantepec City, Oaxaca; Gineta Mountains, Chiapas).—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 62, part (Guatemala); U. S. Geol. and Geogr. Sur. Terr., ser. 2. Bull. 2, 1876, 168, part (Colima and Río Tupila Colima; Mazatlán Sinaloa; Potrero and Mirador Veracruz; Tehuantepec, Oaxaca; Mérida, Yucatán; Guatemala; Realejo, Nicaragua; San José and Sipurio, Costa Rica).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 213, part (Costa Rica).—Boucard, Liste Ois. Récol. Guatemala, 1878, 19 (Guatemala).—Nutting, Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica); vi, 1884, 388 (Sucuyá, Nicaragua).—Zeledón, Cat. Aves Costa Rica, 1882, 27.—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 79, part (Bebedero de Nicoya, Costa Rica).

Urubitinga zonura β Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 2, 1876, 169 ("Middle America, north to Vera Cruz, Tehuantepec, and Mazatlan").

Urubitinga ridgwayi Gurney, List Diurn. Birds Prey, 1884, 148, 150 (crit.; Savana Grande and Cobán, Guatemala; "Sonata" [Tonalá?] Chiapas; Presidio [de Mazatlán]); Cat. Birds Prey, 1894, 25.—Ridgway, Man. North Amer. Birds, 1887, 238; Proc. U. S. Nat. Mus., x, 1888, 592 (Río Segóvia, Honduras).—Sharpe, Hand-list, i, 1899, 258.—Salvin and Godman, Biol. Centr.-Amer., iii, 1900, 79 (Mazatlán and Presidio de Mazatlán, Sinaloa; Colima; Orizaba, Córdoba, and San Andrés, Veracruz; Santa Efigenia, Barrio, and Tehuantepec, Oaxaca; Gineta Mountains, and Tonalá, Chiapas; Chable, Buctzotz, and Mérida, Yucatán; Cayo, British Honduras; Cobán, San Gerónimo, and Savana Grande, Guatemala; Río Segovia, Honduras;

Realejo, San Emilio, Lake Nicaragua, Momotombo, San Carlos, and Río Escondido, Nicaragua; San José, Aguacate, San Mateo, Pozo Azul de Pirris, Miravalles, and Gulf of Nicoya, Costa Rica).—Miller, Bull. Amer. Mus. Nat. Hist., xxi, 1905, 345 (Escuinapa, Sinaloa).—Phillips, Auk, xxviii, 1911, 73 (Altamira, Tamaulipas).—Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (e. Quintana Roo, Yucatán).—Swann, Monogr. Birds Prey, i, 1930, 455 (monogr.).

Urubitinga zonura subspecies a. *ridgwayi* Gurney, List Diurn. Birds Prey, 1884, 77 (no descr., but refers to Appendix I, where discussed in detail; no type locality designated, but cites only Lawrence and Sumichrast, U. S. Nat. Mus. Bull. 4, 1875, 42).

Urubitinga zonura ridgwayi Zeledón, Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 531 (San Carlos and Río Escondido, Nicaragua).

Urubitinga urubitinga ridgwayi Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (San José; San Mateo).—Cherrie, Auk, ix, 1892, 328 (San José, Costa Rica); Expl. Zool. Merid. Costa Rica, 1893, 51 (Punta Mala, Delta del Diquís, and Laguna del Sierpe, sw. Costa Rica).—Carriker, Ann. Carnegie Mus., vi, 1910, 461 (La Vijagua, Cerro de Santa María, El General de Térraba, Guácimo, El Hogar, and Bebedero, Costa Rica).—Swann, Synopt. List Accip., pt. 2, 1919, 58; Synop. Accip., ed. 2, 1922, 97 (Mexico to Costa Rica).—Bangs and Peters, Bull. Mus. Comp. Zool., lxviii, 1928, 388 (Chivela, Oaxaca, Mex.).—Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 310 (Almirante, Panama).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 157 (distr.; Guatemala).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; Segovia River).

Morphnus ridgwayi Hellmayr, Nov. Zool., xxviii, 1921, 177 (crit.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 152, in text (crit.; considers it specifically distinct from *M. urubitinga*).

Hypomorphnus urubitinga ridgwayi Peters, Check-list Birds of World, i, 1931, 249.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 300 (Panama: Cerro Flores, Chiriquí, Canal Zone).—van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, No. 27, 1935, 16 (Uaxactún, Petén, Guatemala; spec.).—van Rossem, Birds El Salvador, 1938, 120 (localities in El Salvador; plumage; colors of soft parts; habits); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 58 (Sonora; status uncertain; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 203 (Pacaitun, Campeche; spec.).—Sutton, Auk, lix, 1942, 108, in text (Tamaulipas; correction).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region; sw. Tamaulipas; spec.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 28 Mexico; Campeche; El Vapor; spec.).

Urubitinga urubitinga Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Panama; Canal Zone).

Buteogallus anthracinus anthracinus Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 26 (ne. Mexico; spec. from Victoria and Gómez Farias, Tamaulipas).

HYPOMORPHNUS URUBITINGA URUBITINGA (Gmelin)

Brazilian Urubitinga

Adult (sexes alike).—Similar to that of *Hypomorphnus urubitinga ridgwayi*, but with the tail white with only one broad, subterminal, black band, and with the under wing coverts and the tibiae without

fine whitish bars or spots; bill black at tip, pale yellow at base; iris deep red; feet yellowish green.

Immature (sexes alike).—Similar to that of *Hypomorphnus urubitinga ridgwayi.*

Juvenal (sexes alike).—Similar to that of *Hypomorphnus urubitinga ridgwayi.*

Natal down.—Not known.

Adult male.—Wings 377–400 (391); tail 232–256 (244.6); culmen from cere 30–33.5 (31.6); tarsus 114–125 (117.4); middle toe without claw 47–51 (48.5 mm.).[93]

Audlt female.—Wings 383–428 (409.5); tail 240.5–261 (251); culmen from cere 30–34 (32); tarsus 119–128 (123.5); middle toe without claw 49–52.5 (50.5 mm.).[94]

Range.—Resident from extreme eastern Panama (Perme, Darién), Trinidad, and Tobago, through Colombia, Venezuela, the Guianas, all of Brazil, Ecuador, to Peru (Río Javarri, Chyaveta, Chamicuros, Santa Cruz) and to northern Bolivia (Río Beni, Chiquitos).

Type locality.—Brazil.

Falco urubitinga Gmelin, Syst. Nat., i, pt. 1, 1788, 265.—Latham, Index Orn., i, 1790, 22.—Daudin, Traité d'Orn., ii, 1800, 57.—Shaw, Gen. Zool., vii, pt. 1, 1809, 60 (Brazil).—Temminck, Planches Col., i, 1825, pl. 55, and text.—Maximilian, Beitr. Naturg. Bras., i, 1830, 196 (Itabapuana; Rio Mucurí; Camacano).

Aquila urubitinga Spix, Av. Bras., i, 1824, 4, pl. 1 b (Bahia; Pará).

Morphnus urubitinga Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 17.—Cuvier, Règne Anim., ed. 2, i, 1829, 330.—Lesson, Traite d'Orn., 1831, 51.—d'Orbigny and Lafresnaye, Synop. Avium, 1837, 4, part (Chiquitos, Bolivia).—d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, Ois., 1839, 84, part (Bolivia; habits).—Gray, List Spec. Brit. Mus., pt. 1, Accip., 1848, 21 (Brazil; Cayenne; "West Indies").—Sclater, Proc. Zool. Soc. London, 1857, 261 (Rio Javarri, upper Amazon).—Léotaud, Ois. Trinidad, 1866, 14.—Hellmayr, Nov. Zool., xxviii, 1921, 177 (crit.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 152 (Bonda, Neguage, and Don Diego, Santa Marta; cirt.; considers *M. ridgwayi* specifically distinct).

Morphnus urubitinga urubitinga Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xli, 1929, 462 (Piauhy, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 109 (crit. distr.; Matto Grosso, Brazil).

Harpyia urubitinga Swainson, Classif. Birds, ii, 1837, 208.

Hypomorphnus urubitinga Tschudi, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 263 (Peru); Fauna Peruana, Aves, 1844–46, 16, 84.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 740.—Burmeister, Syst. Uebers. Th. Bras., ii, 1855, 43 (Brazil); Proc. Zool. Soc. London, 1868, 633.—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 272 (Brazil; Cayenne).

Hypomorphnus urubitinga urubitinga Peters, Check-list Birds of World, i, 1931, 244.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 314 (Permé, Panama); lxxviii, 1935, 300 (Permé, Panama).—Roberts, Trop. Agr., xi, No. 4, 1934,

[93] Five specimens from Panama, Colombia, Brazil, Surinam, and Ecuador.

[94] Four specimens from Brazil and Surinam.

5 (Trinidad).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 185 (Venezuela; Ocumare de la Costa; El Sombrero).—Dugand, Rev. Acad. Colomb., iii, 1940, 219 (Colombia to Brazil and Peru).—Dugand and Borrero, Caldasia, iv, 1946, 140 (Colombia; Leticia, and Loretoyacu; spec.).

Asturina (Spizigeranus) urubitinga Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260 (South America).

Asturina urubitinga Kaup, Isis, 1847, 205 (monogr.), 367, 373, 375, 379; *in* Jardine's Contr. Orn., 1850, 68.—Schlegel, Mus. Pays-Bas, ii, No. 5, 1862, 6 (monogr.); No. 36, 1873, 103.

Buteo urubitinga Gray, Hand-list, i, 1869, No. 77 (South America).

Urubitinga urubitinga Ridgway, Man. North Amer. Birds, 1887, 238.—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 70 (Trinidad); Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 247 (Salaqui, Río Atrato, and Monguido, Colombia).—Sharpe, Hand-list, i, 1899, 258.—Berlepsch and Hartert, Nov. Zool., ix, 1902, 113 (Quiribana de Caicara, Caicara, La Prición, and Nicare, Venezuela; color of unfeathered parts).—Hartert, Nov. Zool., ix, 1902, 605 (Pulún, nw. Ecuador).—Hellmayr, Abh. Bayer. Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 568 (crit.); Nov. Zool., xvii, 1910, 411 (Cachoeira do Madeira, Borba, Brazil).—Ihering and Ihering, Av. Brazil, 1907, 92 (Río Grande do Sul, Bahia, Matto Grosso, Minas Geraes, and Pará).—Berlepsch, Nov. Zool., xv, 1908, 292 (Cayenne).—Snethlage, Journ. für Orn., 1908, 22 (Rio Purús, w. Brazil); Bol. Mus. Goeldi, v, 1908, 67 (Rio Purús); Journ. für Orn., lxxvi, 1928, 553, 572, 676 (breeding season and egg number in various South American countries).—Carriker, Ann. Carnegie Mus., vi, 1910, 461 (Costa Rica; crit.).—Reiser, Denkschr. Akad. Wiss. Wien, math.-nat. Kl., 1910, 90 (Paranaguá, etc., ne. Brazil).—Brabourne and Chubb, Birds South Amer., i, 1912, 681, part (Guiana; Colombia).—Reichenow, Die Vögel, i, 1913, 391.—Chubb, Birds Brit. Guiana, i, 1916, 246 (habits).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 37 (Paramaribo, Surinam).—Delacour, Ibis, 1923, 145 (Gúarico and Apure, Venezuela).—Schüz, Journ. für Orn., lxxv, 1927, 99, in text (powder downs).—Schönwetter, Beiträge Fortpfl. Vög., iv, 1928, 95 (eggs).—Devincenzi, Anal. Mus. Hist. Nat. Montevideo, ser. 2, iii, 1929, 28 (plum.; descr.; Costa Rica to 35° S.).—Young, Ibis, 1929, 10 (coast Brit. Guiana).

Urubutinga urubitinga Resier, Denkschr. Akad. Wiss. Wien, math.-nat. Kl., 1910, 90 (Piauhy, Brazil).

Urubitinga urubitinga urubitinga Hellmayr, Nov. Zool., xvii, 1910, 411 (Rio Madeira, Brazil).—Swann, Synopt. List Accip., pt. 2, 1919, 58; Synop. Accip., ed. 2, 1922, 96, part (Tobago; Venezuela; Guianas, and Ecuador to Chile, e. Peru, Brazil).

Falco zonurus Shaw, Gen. Zool., vii, pt. 1, 1809, 62 (South America; based on "L'Aigle huppe d'Amerique Sonnini, Buff[on]").

Urubitinga zonura Sclater, Trans. Zool. Soc. London, 1858, 262.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 316 (Panama).—Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Mexiana Island, Brazil); 1873, 302 (Río Javarri, Chyavetas, Chamicuros, and Santacruz, e. Peru); Nom. Av. Neotr., 1873, 119, part (South America); Proc. Zool. Soc. London, 1879, 637 (Chiquitos, Bolivia).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 62, part (Brazil); Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 2, 1876, 168, part (monogr.).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 213 (Pará; Mexiana Island; Cayenne; Demerara).—Berlepsch, Ibis, 1884, 436 (Angostura, Venezuela).—Gurney, List Diurn. Birds Prey, 1884, 77, 148

(crit.); Cat. Birds Prey, 1894, 25.—Taczanowski, Orn. Pérou, i, 1884, 104.—Salvin, Ibis, 1886, 74 (Brit. Guiana).—Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 105 (lower Río Beni, Bolivia).—Koenigswald, Journ. für Orn., 1896, 384 (São Paulo, s. Brazil).—Loat, Ibis, 1898, 563 (British Guiana).—Ihering, Rev. Mus. Paulista, iii, 1899, 355 (Iguape, São Paulo, s. Brazil).—Salvadori, Boll. Mus. Zool. Torino, xv, 1900, 13 (Urucum, Matto Grosso, sw. Brazil).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 79, part (Colombia; Guiana; Amazonia; Brazil).—Goeldi, Ibis, 1903, 497 (Rio Capim, ne. Brazil).—Hagmann, Journ. für Orn., 1906, 108 (Mexiana Island; descr. eggs); Zool. Jahrb., 1907, 22 (Mexiana Island).

Urubitinga zonura alpha *zonura* Ridgway, Bull. U. S. Geol. and Georgr. Surv. Terr., ser. 2, No. 2, 1876, 169 (diagnosis).

Spizaetus niger Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 57 (Cayenne).

Pandion fulvus Vieillot, Nouv. Dict. Hist. Nat., new ed., iii, 1816, 163 (Montevideo).

Spizaetus ater Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 58 (based on *aigle noir huppé d'Amerique* Sonnini, ed. Buffon, vol. 38, pl. 6).

Aquila picta Spix, Av. Bras., i, 1824, 5, pl. 1c (Marajo Island, Brazil).

Asturina (*Spizigeranus*) *anthracinus* Kaup, Mus. Senekenb., iii, Heft 3, 1845, 260 (South America).

Hypomorphnus anthracinus Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 740.—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 272, part (Guiana).

Urubitinga anthracina Sharpe, Cat. Birds Brit. Mus., i, 1874, 458 (Cayenne).—Salvin, Ibis, 1886, 74 (Brit. Guiana).—Quelch, Timehri, vi, 1892, 157 (doubtful in Brit. Guiana).—Brabourne and Chubb, Birds South Amer., i, 1912, 69, part (Guiana, Brazil).

Urubitinga longipes Bonaparte, Consp. Gen. Av., i, 1850, 29 (ex *Falco longipes* Illiger in Berlin Mus.); Rev. Mag. Zool., vi, 1854, 537.

Morphnus brasiliensis Strickland, Orn. Syn., i, 1855, 24 (new name for *Falco urubitinga*).

Urubitinga brasiliensis Pelzeln, Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 393 (ex *Aquila brasiliensis* Brisson, Orn., i, 1760, 445).

Heterospizias meridionalis Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 313 (Permé, Panama).

Genus BUTEOGALLUS Lesson

Buteogallus Lesson, Traité d'Orn., 1831, 83. (Type by monotypy, *B. cathartoides* Lesson = *Falco busoni* Latham.)

Alectromorphnus Heine, in Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 271. (New name for *Buteogallus* Lesson, rejected on grounds of purism.)

Urubitinga Reichenow, Die Vögel, i, 1913, 389, part.

Medium-sized or rather large hawks (wing about 311–355 mm.) resembling *Hypomorphnus* somewhat in form, but differing in more naked loral and orbital regions, partially denuded forehead (entirely devoid of any feathers, even of bristles in *aequinoctialis*, which also has a smaller nostril, relatively shorter outer toe, relatively shorter tail, and in having diverse types of coloration (that of *aequinoctialis* resembling that of *Heterospizias*)).

Bill relatively small and weak, the maxilla rather narrow (vertically) with the relatively long unguis not strongly decurved; culmen (chord) much shorter than claw of hallux (slightly longer than that of inner

toe), gonys nearly straight, slightly ascending terminally; not prominent basally; maxillary tomium with a large anterior and a smaller, more shallow, posterior concavity, separated by a short but distinct median convexity; anterior margin of cere oblique, sinuated (slightly convex above, concave below). Nostril rather small, nearly circular, situated much above middle of anterior portion of cere, but separated by a considerable interval from anterior edge of the latter. Wing moderately long and pointed, the longest primary exceeding distal secondary by less than one-fourth the length of wing; third to fifth (usually fourth or fifth?) primaries longest, the first (outermost) intermediate between ninth and tenth; four outer primaries with inner webs shallowly sinuated, then distal portion not incurved. Tail more than half to less than half (*aequinoctilis*) as long as wing, its tip truncate or even faintly emarginate. Tarsus less than one-fourth as long as wing, more than half as long as tail, feathered in front for about upper third, the unfeathered portion of acrotarsium with about eleven large, frontal, transverse scutella; middle toe (without claw) more than half as long as tarsus; outer toe very slightly longer than inner, the end of the latter reaching to or beyond middle or penultimate phalanx of middle toe; hallux shorter than lateral toes, its claw much longer than the digit and about twice as long as that of outer toe.

Plumage and coloration.—Entire loral region and considerable part of orbital region nude or with very few minute bristles along anterior edge of the former; the anterior portion of forehead also more or less denuded (in *aequinoctialis*) or feathered (*anthracinus; gundlachii*); plumage in general full and rather soft, the feathers broad and rounded to slightly pointed terminally, those of upperparts distinctly outlined, those of underparts more blended, those of head and neck narrower and more pointed, almost cuneate on pileum. Adults very different in color in the different species—black, dark brown, and cinnamon rufous, or fuscous-black and whitish. Young mostly dull grayish brown above, the secondaries indistinctly barred with dusky, the basal portion of tail indistinctly barred with dusky and intermixed with ochraceous; underparts pale ochraceous to buffy whitish, with dusky spots across lower throat or foreneck, the thighs sometimes transversely spotted with dusky.

Range.—Southern Arizona and Texas to Brazil and Ecuador; also in the West Indies (4 species).

KEY TO THE SPECIES AND SUBSPECIES OF BUTEOGALLUS

a. Underparts buffy or whitish, more or less marked with dark brown (young).
b. Crown dark brown, unstreaked but margined with yellowish white; nape pale buff, unstreaked.....**B. aequinoctialis** juv. (extralimital [95])

[95] **Falco aequinoctialis** Gmelin, Syst. Nat., i, pt. 1, 1788, 265 (Cayenne).—*Buteogallus aequinoctialis* Peters, Check-list Birds of World, i, 1931, 245.

bb. Crown buffy heavily streaked with blackish or blackish brown, or, if nearly solid blackish, the nape heavily streaked buff and blackish.

c. Dark bars on rectrices very narrow, less than 8 mm. wide; crown practically solid blackish (Cuba and Isle of Pines).

B. gundlachii, juv. (p. 407)

cc. Dark bars on rectrices broader, usually more than 10 mm. wide; crown streaked buff and blackish.

d. Outer webs of secondaries (as in folded wings) abundantly flecked with tawny chestnut in their terminal halves (Lesser Antilles, Trinidad, northern Venezuela to eastern Panama).

B. anthracinus cancrivorus, juv. (p. 403)

dd. Outer webs of rectrices with no chestnut flecks.

e. Size smaller, wing under 340 mm. (Pacific slope from southern Mexico to Panama and to southern Ecuador).

B. anthracinus subtilis, juv. (p. 405)

ee. Size larger; wing over 350 mm. (southwestern United States to Panama and northern Colombia).

B. anthracinus anthracinus, juv. (p. 399)

aa. Underparts rufous-chestnut or blackish (adults).

b. General coloration rufous-chestnut.

B. aequinoctialis, ad. (extralimital)

bb. General coloration blackish or blackish brown.

c. General color dark brownish, not definitely black (Cuba and Isle of Pines)---------- **B. gundlachii**, ad. (p. 406)

cc. General color blackish.

d. Wing length under 345 mm. (Pacific slope from southern Mexico to Ecuador)---------- **B. anthracinus subtilis**, ad. (p. 405)

dd. Wing length over 345 mm.

e. Feathers of nape spotted with tawny buff (Lesser Antilles to Venezuela and eastern Panama).

B. anthracinus cancrivorus, ad. (p. 403)

ee. Feathers of nape spotted with whitish (Southwestern United States to Panama and northern Colombia).

B. anthracinus anthracinus, ad. (p. 398)

BUTEOGALLUS ANTHRACINUS ANTHRACINUS (Lichtenstein)

Mexican Crab Hawk

Adult (sexes alike in coloration).—General color uniform slate-black with a strong glaucous cast [96] on the back, neck, and breast; the head generally darker black and without the glaucous cast; the feathers of the crown, occiput, and nape with white bases more or less tinged with pale tawny; upper wing coverts and remiges like the back, the inner webs and the concealed portion of the secondaries usually (but not always) mottled with grayish to hair brown to pale tawny-ochraceous; the third to the fifth primaries longest, the first intermediate between the eighth and tenth, the outer four with the inner webs slightly sinuated; tail much shorter than wing, very slightly rounded

[96] Autumn birds (fresh plumage) have the glaucous cast more distinct than in spring specimens.

or nearly square; deep black, narrowly tipped with white, white at the extreme base, and crossed at about the middle by a broad, continuous zone of the same, of variable width (30–80 mm.); upper tail coverts and under wing coverts more widely tipped with the same; terminal half of the bill plumbeous-black, the basal half, the cere, and the rictus waxy bright yellow or orange; iris brown; tarsi and toes yellow; claws plumbeous-black; iris dark brown.

Juvenal (sexes alike).—Above brownish black, varying from dark hair brown to dark sepia and deep fuscous, generally darker on the

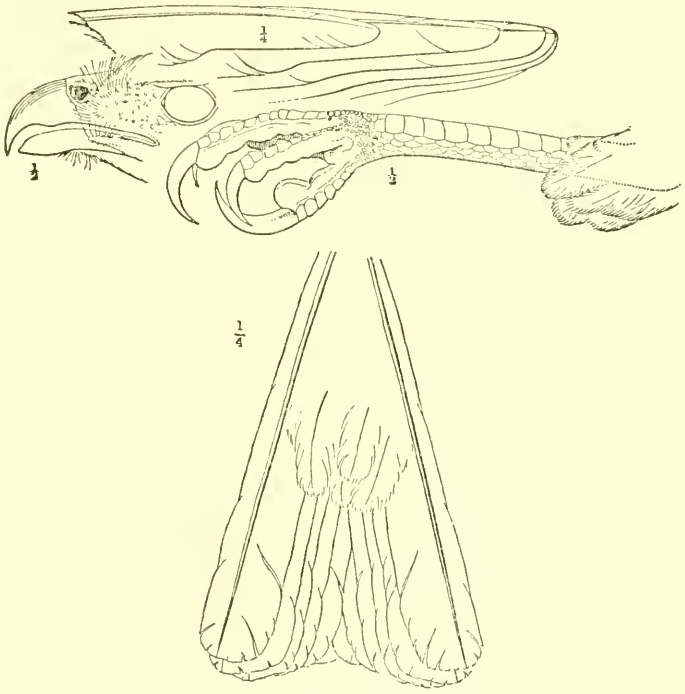

FIGURE 26.—*Buteogallus anthracinus.*

head and nape; the top of head and nape with broad buffy white streaks and spots (actually the dark fuscous marks are restricted to elongated terminal tear-shaped shaft streaks); the scapulars and upper wing coverts like the back, but irregularly variegated with pale ochraceous-tawny and tawny-buff, many of the feathers tipped with ochraceous-tawny; remiges like the back but somewhat indistinctly barred with dark fuscous or fuscous blackish; the secondaries with a pale ochraceous-tawny wash on the inner margin of the inner webs; upper tail coverts like the back but broadly mottled with white or pale tawny whitish; rectrices white to light pinkish cinnamon becoming more intensely colored on the outer feathers, and crossed by 5 to 7

somewhat oblique black bands varying in width from about 10–30 mm.; the relative width of the light and dark bars varying with the individual, but with the subterminal black band always broader than any of the others; sides of head like crown, but with relatively less blackish; chin and upper throat whitish to pale tawny to cinnamon-buff with fine dusky shaft lines; lower throat, breast, and abdomen, sides, and flanks more heavily washed with avellaneous to pale ochraceous-tawny and with broad tear-shaped, blackish or dark fuscous shaft streaks, these streaks largest and most conspicuous on the sides of the lower throat, sides, and flanks; thighs barred with fuscous or blackish; under tail coverts also barred but less abundantly than the thighs; under wing coverts buffy to tawny-white streaked with fuscous; cere and base of bill olive yellow to greenish yellow; tip of bill plumbeous black; iris brown; tarsi and toes dull greenish-yellow; claws plumbeous-black.

Natal down.—Dense and woolly, "nearly white on head and breast, passing into grayish posteriorly upon the head, throat, sides of breast, tibiae and back." (Mearns)

Adult male.—Wing 337–400 (367.1); tail 192–228 (206.4); culmen from cere 24–29 (26.3); tarsus 80–95 (87.3); middle toe without claw 36–47.1 (42.0); middle claw 19–24 (21.4 mm.).[97]

Adult female.—Wing 355–400 (381.5); tail 203–244 (222.3); culmen from cere 25–33 (27.9); tarsus 74–107 (92.9); middle toe without claw 38–48 (42.2); middle claw 19.1–25 (21.8 mm.).[98]

Range.—Resident from southern Arizona (Fort Huachuca, Agua Fria, Tonto Creek, Santa Catalina Mountains, south of Gila River, Bowie, Lowell, Fossil Creek, Tombstone, Rio Verde, Pima County), southern New Mexico (San Luis Mountains; Gila River, east of Cliff; near Silver City), and the Rio Grande Valley of Texas (Starr and Cameron Counties) south throughout Mexico (records from Sonora, Chihuahua, Tamaulipas, Sinaloa, Nuevo León, Nayarit, Veracruz, Colima, Puebla, Jalapa, Guerrero, Oaxaca, Chiapas, Tehuantepec, and Yucatán (including Cozumel Island)), British Honduras (Belize), Guatemala (many localities), Honduras (Omoa), Nicaragua (Río Escondido; Greytown), El Salvador (except the mangrove swamps on the coast; Lake Olomega, Río Goascorán, Mount Cacaguatique, San Salvador, Hacienda Zapotitán Volcán de San Salvador, Río San Miguel, San José del Sacare, Lake Guija, Miraflores); and Costa Rica (many localities), Panama (Chitra, Ancón, Bugaba, Veraguas, Permé) and to the coastal areas of northern Colombia.

Type locality.—Mexico.

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[97] Twenty-nine specimens from Texas, Mexico, Costa Rica, and Panama.

[98] Thirty specimens from Texas, Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, and Panama.

Falco anthracinus Lichtenstein, Preis-Verz. Mex. Vög., 1830, 3 (Mexico; coll. Berlin Mus.); Journ. für Orn., 1863, 58.—Lafresnaye, Rev. Zool., 1840, 240.—Nitzsch, Pterylographia, 1840, 83.

Urubitinga anthracina Lafresnaye, Rev. Zool., 1848, 241.—Sclater, Proc. Zool. Soc. London, 1858, 295 (La Parada, Oaxaca).—Moore, Proc. Zool. Soc. London, 1859, 52 (Omoa, Honduras).—Sclater and Salvin, Ibis, 1859, 216 (Gulf of Nicoya; Costa Rica; Omoa, Honduras; food); Proc. Zool. Soc. London, 1864, 369 (Panama); 1867, 280 (Blewfields River. i. e., Río Escondido, Nicaragua); 1870, 838 (coast Honduras); Nom. Av. Neotr., 1873, 119, part (Mexico to Colombia).—Salvin and Sclater, Ibis, 1860, 45 (Dueñas, Guatemala).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 316 (Panama); viii, 1865, 184 (Greytown, Nicaragua); ix, 1868, 132 (San José and Angostura, Costa Rica); Mem. Boston Soc. Nat. Hist., ii, 1874, 302 (Mazatlan, Sinaloa; San Blas, Tepic; habits); U. S. Nat. Mus., Bull. 4, 1875, 42 (Tapana and Santa Efigenia, Oaxaca; habits; fresh colors of unfeathered parts).—Owen, Ibis, 1861, 68 (San Gerónimo, Guatemala; descr. nest and eggs).—Schlegel, Mus. Pays-Bas, ii, No. 5, 1862, 8; No. 36, 1873, 103.—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).—Pelzeln, Orn. Bras., Abth. 4, 1870, 394.—Salvin, Proc. Zool. Soc. London, 1870, 215 (Chitra and Bugaba, Veraguas, Panama); Ibis, 1885, 193 (Cozumel Island, Yucatán); 1889, 375 (Cozumel Island).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 63, part (Belize, Brit. Honduras); Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 170, part (monogr.; Mirador and Orizaba, Veracruz; Mazatlán, Sinaloa; Colima and Río de Coahuyana, Colima; San Blas, Tepíc; Tehuantepec, Oaxaca; Acajutla, Salvador; Nicaragua; San José, Angostura, Punta Arenas, and Talamanca, Costa Rica; Panama); Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 444; Proc. U. S. Nat. Mus., viii, 1885, 581 (Cozumel Island); Man. North Amer. Birds, 1887, 239.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 215 (Mexico; Vera Paz, Guatemala).—Henshaw, Amer. Sportsman, v, Feb. 10, 1875, 328 (s. of Gila River, Ariz.); Zool. Wheeler's Exped., 1875, 420 (Bowie and Lowell, Ariz.).—Gurney, Ibis, 1876, 489, in text (crit.; descr. "abnormal" immat. spec. from Chepo, Panama); List Diurn. Birds Prey, 1884, 76; Cat. Birds Prey, 1894, 25.—Allen, Bull. Nuttall Orn. Club, v, 1880, 91.—Coues, Check-List North Amer. Birds, ed. 2, 1882, No. 528; Key North Amer. Birds, ed. 2, 1884, 552.—Nutting, Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica).—Boucard, Proc. Zool. Soc. London, 1883, 456 (Yucatán; note).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—American Ornithologists' Union, Check-list, 1886, No. 395; ed. 2, 1895, 133; ed. 3, 1910, 160.—Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Chietla, Puebla; Jalapa; Veracruz).—Mearns, Auk, iii, 1886, 69 (Fossil Creek, Rio Verde, etc., Arizona; descr.; habits).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Jiménez; Pozo Azul de Pirris; Talamanca).—Bendire, Life Hist. North Amer. Birds, i, 1892, 248, pl. 8, figs. 8, 9.—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 51 (Palmen, Costa Rica).—Fisher, Hawks and Owls United States, 1893, 84 (food habits).—Beristain and Laurencio, Mem. y Rev. Soc. "Antonio Alzate," vii, 1894, 225 (Mexico; distr.).—Jouy, Proc. U. S. Nat. Mus., xvi, 1894, 787 (Hacienda El Molino, Jalisco; habits; notes).—Sharpe, Hand-list, i, 1899, 258, part (Central America; sw. United States).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 81, part (Mexican and Central American localities).—Bailey, Handb. Birds Western United States, 1902, 160 (w. United States; descr.).—Thomas, Condor, x,

1908, 116–118 (Brit. Honduras; habits).—Carriker, Ann. Carnegie Mus., vi, 1910, 462 (Guayabo, Pigreo, San José, Cerro de Santa Maria, Bolsón, Guácimo, and El Hogar, Costa Rica).—Visher, Auk, xxvii, 1910, 281 (Pima County, Ariz., 5,000–7,000 ft.).—Phillips, Auk, xxviii, 1911, 73 (Galindo and Río Cruz, Tamaulipas).—Reichenow, Die Vögel, i, 1913, 391.—Swarth, Pacific Coast Avif., No. 10, 1914, 26 (Arizona; breeds near Fort Verde; seen at Forts Bowie, Lowell, and Huachuca).—Grinnell, Pacific Coast Avif., No. 11, 1915, 182 (California; hypothetical).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Fort Lorenzo, Canal Zone; spec.).—Hallinan, Auk, xli, 1924, 311 (mouth of Río Juan Diaz, Panama; food).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 100 (descr.; characters).—Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (e. Quintana Roo, Yucatán).—Schönwetter, Beitr. Fortpfl. Vög., iv, 1928, 95 (eggs).—del Campo, Anal. Inst. Biol., viii, 1937, 336 (Morelos; Las Estacas; spec.).—Monson, Condor, xliv, 1942, 222 (se. Arizona).

Urobitinga anthracina Bangs, Proc. New England Zool. Club, iii, 1902, 20 (Sona, Chiriquí, Panama).

Urubitinga anthracina anthracina Clark, Proc. Boston Soc. Nat. Hist., xxxii, 1905, 63, in text.—Swann, Synopt. List Accip., pt. 2, 1919, 58; Synop. Accip., ed. 2, 1922, 97, part (Panama to Texas and Arizona); Monogr. Birds Prey, i, 1930, 456 (monogr).—McLellan, Proc. California Acad. Sci., ser. 4, xvi, 1927, 20 (San Blas, Mexico; plum.).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 449 (Almirante, Panama; spec.; colors of soft parts).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 135 (descr.; habits; Panama).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 417 (Tela, Honduras); lxxi, 1931, 310 (Almirante, Western River, Banana River, Changuinola, Panama).—American Ornithologists' Union, Check-list, ed. 4, 1931, 70; Auk, lxi, 1944, 445 (nomencl.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; Cantarranas; Omoa, Chaloma, and San Pedro).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 157 (distr. in Guatemala; Finca Sepacuite, La Montañita, San Antonio, Finca el Cipres, Ocos).—Brooks, Auk, l, 1933, 61 (Point Isabel, Tex.; spec.; Rio Grande, 15 miles below Brownsville; spec.).—Monson, Wils. Bull., xlviii, 1936, 313, in text (Arizona: Arivaipa Canyon, Pinal County: nest).—Jenks and Stevenson, Condor, xxxix, 1937, 87, in text (Arizona; Eagle Creek; spec.).—Cottam and Knappen, Auk, lvi, 1939, 150, in text (New Mexico; Cloverdale; food habits; spec.).—Hill, Auk, lxi, 1944, 236 (meas.).

Morphnus anthracinus Strickland, Orn. Syn., i, 1855, 25.—Sclater, Proc. Zool. Soc. London, 1857, 211 (Orizaba, Veracruz), 227 (San Andrés Tuxtla, Veracruz.—Bailey, Birds New Mexico, 1928, 175 (New Mexico).

Asturina anthracina Schlegel, Mus. Pays-Bas, ii, No. 5, livr. 1, 1862, 8 (monogr.).

Buteo anthracinus Gray, Hand-list, i, 1869, 9, No. 78.

Hypomorphnus anthracinus Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 272, part (Yucatán).

Buteogallus anthracinus anthracinus Peters, Check-list Birds of World, i, 1931, 244.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 315 (Permé, Panama); lxxviii, 1935, 300 (w. Panama to Canal Zone).—Deignan, Auk, liii, 1936, 187, in text (Honduras; spec.; descr.).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 44, in text, 46, 48 (crit.; meas.; distr.).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 23 (Brewster County, Tex.; descr.; food).—Dugand, Rev. Acad. Colomb., iii, 1940, 220 (coastal areas, n. Colombia).—Sutton, Auk, lix, 1942, 108, in text (corr.; Tamaulipas).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56,

1943, 28 (Tabasco, Mexico).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).

Buteogallus (*Urubitinga*) *anthracinus anthracinus* Sassi, Temminckia, iii, 1938, 300 (Costa Rica: Puerto Jiminez, Bebedero, Waldeck).

Buteogallus anthracinus Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region, sw. Tamaulipas; spec.).

Morphnus mexicanus DuBus, Bull. Acad. Roy. Belg., xiv, pt. 2, 1847, 102 (Tabasco, s. Mexico; Guatemala; coll. Nat. Hist. Mus. Brussels).—Lafresnaye, Rev. Zool., 1848, 239.

Urubitinga mexicana Bonaparte, Rev. et Mag. Zool., vi, 1854, 488.

Buteogallus anthracinus micronyx van Rossem and Hachisuka, Trans. San Diego Soc. Nat. Hist., viii, 1937, 361 (Arizona: Arivaipa Creek, Graham County; w. Chihuahua and s. Sonora; descr.; crit.).—Anonymous, Auk, lv, 1938, 309, in text (Arizona).—van Rossen, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 59 (Sonora; common summer res.).

Buteogallus anthracina micronyx Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 561 (California; hypothetical).

Buteogallus anthracinus subtilis (not of Thayer and Bangs) Marshall, Condor, xlv, 1943, 22 (El Salvador: Lake Olomega; imm. spec.).

BUTEOGALLUS ANTHRACINUS CANCRIVORUS (Clark)

Antillean Crab Hawk

Adult (sexes alike).—Similar to that of *Buteogallus anthracinus anthracinus*, but has the feathers of the hind neck and back spotted with pale tawny-buff instead of whitish; has the general coloration of the whole body deeper black, and the white tail band averaging slightly narrower. Above deep sooty black, the feathers of the occiput, nape, and upper back basally white, the white becoming pale tawny-buff below the black terminal areas, and this color showing through the black producing an irregularly mottled appearance; wings deep sooty black like the back, the secondaries mottled and incompletely banded with dark grayish and slightly ferruginous grayish, the ferruginous wash predominating on the inner webs, the dark grayish on the outer ones; the primaries mottled with whitish basally on the inner webs; the shafts whitish; upper and under tail coverts tipped with whitish; rectrices basally mottled with whitish, then broadly black, then crossed by a broad white band near the middle of their length, followed by a still broader black band, terminally margined with white; the shafts of the rectrices white at the base, becoming black in the proximal black band and remaining black to the tip on the upper surface, but becoming white again below through the broad white band; cere and base of bill orange; tip of bill blackish; iris brown; feet orange.

Juvenal.—Similar to that of *Buteogallus anthracinus anthracinus*, but with the outer webs of the secondaries abundantly flecked with tawny-chestnut in their terminal halves.

Natal down.—Not known.

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Adult male.—Wing 372–375; tail 192–195; culmen from cere 26–26.5; tarsus 83–85; middle toe without claw, 43–44 mm.[99]

Adult female.—Wing 375–395 (382.3); tail 195–218 (208.7); culmen from cere 28–29.5 (28.8); tarsus 92–93 (92.7); middle toe without claw 44–49 (46.7 mm.).[1]

Range.—Resident in St. Vincent, the Lesser Antilles, Trinidad, and probably the north coast of Venezuela and of Colombia (Río Atrato, and the Santa Marta area) to extreme eastern Darién, Panama, (Obaldia). Accidental in St. Lucia; doubtfully recorded from Grenada.

Type Locality.—Barroualie, St. Vincent, Lesser Antilles.

Urubitinga mexicana Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1860, 133 (Río Atrato, Colombia).

Astur unicinctus (not *Falco unicinctus* Temminck, 1824) Léotaud, Ois. Trinidad, 1866, 44.

Urubitinga anthracina (not *Falco anthracinus* Lichtenstein) Sclater and Salvin, Ibis, 1868, 629 (Venezuela).—Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 2, 1876, 170, part (monogr.; Río Atrato, Colombia).—Gurney, Ibis, 1876, 487, in text (St. Vincent; crit.); 1879, 221, in text (St. Vincent; crit.); 1880, 247 (St. Vincent).—Lister, Ibis, 1880, 43 (St. Vincent).—Salvin and Godman, Ibis, 1880, 177 (Sierra Nevada de Santa Marta, Colombia); Biol. Centr.-Amer., Aves, iii, 1900, 81, part (St. Vincent; Santa Lucia).—Cory, List Birds West Indies, 1885, and rev. ed., 1886, 22, part (St. Vincent); Ibis, 1886, 473 (St. Vincent); Auk, iv, 1887, 42, part (St. Vincent); Birds West Indies, 1889, 200, part (St. Vincent; Grenada?).—Chapman, Bull, Amer. Mus. Nat. Hist., vi, 1894, 70 (Trinidad).—Clark, Auk, xxii, 1905, 210 (Santa Lucia).—Lowe, Ibis, 1909, 310 (St. Vincent).—Brabourne and Chubb, Birds South Amer., i, 1912, 69, part (Trinidad).—Chubb, Birds British Guiana, i, 1916, 239, part (descr. adult male from St. Vincent).

Urubitinga anthracina? Lawrence, Proc. U. S. Nat. Mus., i, 1878, 194 (St. Vincent; crit.; habits).

Uribitinga anthracina Lawrence, Proc. U. S. Nat. Mus., i, 1879, 487 (St. Vincent).

Urubitinga anthracina anthracina Swann, Synopt. List Accip., pt. 2, 1919, 58; Synop. Accip., ed. 2, 1922, 97, in part (Venezuela and Colombia).—Darlington, Bull. Mus. Comp. Zool., lxxi, No. 6, 1931, 366 (Río Frío, Magadalena, Colombia).

Morphnus anthracinus anthracinus Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 152 (Bonda, Playa Concha, and Cinto, Santa Marta, Colombia; crit.).

Hypomorphnus gundlachi (not of Cabanis, 1854) Finsch, Proc. Zool. Soc. London, 1870, 554 (Trinidad; crit.).

Urubitinga anthracina cancrivora Clark, Proc. Biol. Soc. Washington, xviii, 1905, 63 (Barrouville, St. Vincent, Lesser Antilles; coll. A. E. and O. Bangs); Proc. Boston Soc. Nat. Hist., xxxii, 1905, 244 (St. Vincent; crit.; descr.; habits); West Indian Bull., xi, No. 3, 1911, 182 (Santa Lucia).—Bangs, Auk, xxii, 1905, 309, in text; Bull. Mus. Comp. Zool., lxx, 1930, 191 (type in

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[99] Two specimens from extreme eastern Darién, Panama.

[1] Six specimens from St. Vincent and Trinidad and extreme eastern Darien.

Mus. Comp. Zool.).—Swann, Synop. Accip., ed. 2, 1922, 97 (St. Vincent; Santa Lucia; Trinidad); Monogr. Birds Prey, i, 1930, 458 (monogr.).

Buteogallus anthracinus cancrivorus Peters, Check-list Birds of World, i, 1931, 245.—Belcher and Smooker, Ibis, 1934, 591 (Trinidad; uncommon res.; eggs).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Bond, Birds West Indies, 1936, 68, 69, in text (West Indies; descr.; distr.; egg meas.), 414; Check List Birds West Indies, 1940, 24 (West Indies; distr.; St. Vincent, common; St. Lucia and Grenada, accidental; no spec.; Trinidad), ed. 2, 1945, 24.—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 47, 48 (meas.; distr.).—Danforth, Journ. Agr. Univ. Puerto Rico, xxiii, 1939, 21 (Guadeloupe; hypothetical).—Street, Auk, lxiii, 1946, 371 (Trinidad).

BUTEOGALLUS ANTHRACINUS SUBTILIS (Thayer and Bangs)

Pacific Crab Hawk

Adult (sexes alike).—Similar to that of *Buteogallus anthracinus anthracinus*, but smaller and with a few more whitish feathers, on the average, in the malar region.[2]

Juvenal (sexes alike).—Similar to that of *Buteogallus anthracinus anthracinus*, but averaging less heavily streaked below with fuscous, the thighs averaging less thickly barred, and the upper wing coverts and the secondaries averaging more edged or spotted with rufescent.[3]

Natal down.—Not known.

Adult male.—Wings 328–350 (336); tail 178–200 (186.8); culmen from the cere 25–27 (25.5); tarsus 80–87.5 (82.4); middle toe without claw 42.5–45 (43.4 mm.).[4]

Adult female.—Wing 345–352; tail 186–202; culmen from cere 26.5–27; tarsus 82–83; middle toe without claw 45 mm.[5]

Range.—Mangrove swamps of the Pacific slope from Chiapas, Mexico, and El Salvador (Puerto del Triunfo, Barra de Santiago, La Libertad, Acajutla) to Darién, Panama, to Gorgona Island, Colombia, and to southern Ecuador (Puná Island and Lechugal).

[2] In the original description of this form (Bull. Mus. Comp. Zool., xlvi, No. 5, June 1905, 94), it is stated that the "white central tail band and terminal margin narrower . . . [than in typical *anthracina*] and with the ground color of the broad mottled band extending across the secondaries, bright cinnamon rufous, this band in true . . . *anthracina* having the ground color dull grayish only tinged with rufous on the inner edges of some of the feathers." Only one adult bird was seen by the describers; a series of 6 adults examined in the writing of this book fails to bear out any constant difference in these features from the nominate form.

[3] Chapman (Bull. Amer. Mus. Nat. Hist., lv, 1926, 233–234) has described a plumage I am unable to place (bird not seen by me). It is said to be an immature bird from Puna Island, Ecuador. The "prevailing color is brownish, darker below, with a fuscous tail and broken white sub-terminal band; the upperparts are mottled or barred with rusty and the inner web of the inner wing quills is largely this color."

[4] Five specimens: 1 (type) from Gorgona Island, Colombia; 4 from El Salvador.

[5] Two specimens from El Salvador.

Type locality.—Gorgona Island, Colombia.

Urubitinga anthracina Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 238 (Puná Island, w. Ecuador).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 63, part (Puná Island, w. Ecuador); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 170 (Acajutla, El Salvador.)—Taczanowski, Proc. Zool. Soc. London, 1877, 329 (Lechugal).—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Puná Island, w. Ecuador).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1900, 81, part (La Libertad, Salvador).—Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (San Miguel Island, Bay of Panama; crit.).

Urubitinga subtilis Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 94 (Gorgona Island, sw. Colombia).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 191 (El Salvador).

Urubitinga urubitinga subtilis Swann, Synopt. List. Accip., pt. 2, 1919, 58.

Urubitinga anthracina subtilis Swann, Synop. Accip., ed. 2, 1922, 98.—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 233 (distr. in Ecuador).

Buteogallus subtilis Peters, Check-list Birds of World, i, 1931, 245.—Griscom, Auk, l, 1933, 303 (Río Chepo, Darién, Panama; 3 spec.); Bull. Mus. Comp. Zool., lxxviii, 1935, 300 (Panama, coastal mangrove swamps, Darién and Pearl Islands).

Buteogallus anthracinus subtilis Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 44, 46, 48 (Azuero Peninsula, Panama; spec.; meas.; crit.).—Wetmore, Smiths. Misc. Coll., cvi, No. 1, 1946, 28 (San José Island, Pearl Islands, Panama).

Urubitinga anthracina bangsi Swann, Snyop. Accip., ed. 2, 1922, 98 (San Miguel Island, Bay of Panama; coll. Mus. Comp. Zool.); Monogr. Birds Prey, i, 1930, 460 (monogr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 191 (type in Mus. Comp. Zool.).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 49, in text (Pearl Islands).

BUTEOGALLUS GUNDLACHII (Cabanis)

Cuban Crab Hawk

Adult (sexes alike).—General color brownish fuscous to brownish fuscous-black, usually darker on the top of the head and underparts, lighter on the wings; feathers of the occiput and nape and the interscapulars with whitish bases, the under color showing through as irregular mottling, the white tinged with pale tawny buff just below the fuscous ends of the interscapulars; feathers of the upper back, scapulars, and some of the inner upper wing coverts often narrowly edged with pale tawny grayish; secondaries dark hair brown to pale fuscous, broadly tipped with dark sepia to fuscous very narrowly edged terminally with grayish white and indistinctly barred with dark fuscous, especially the outer secondaries, the inner webs of which are slightly washed or mottled with pale ochraceous; primaries with very long dark fuscous-black tips, otherwise pale hair brown becoming pure white on the inner portion of the basal area of the inner webs of the five outermost feathers and mottled whitish on the inner ones, the pale hair brown portions incompletely barred with fuscous; third

to fifth primaries the longest, second between the sixth and seventh, first longer than the ninth; the white area on the five outermost remiges comprises a very striking white patch on the under surface of the wing; upper tail coverts dark fuscous narrowly tipped with white; tail fuscous-black narrowly tipped with white and crossed by a band of white about 25 mm. wide about one-third of its length from the tip and by a narrow, somewhat mottled grayish white band approximately 25 mm. cephalad to the conspicuous band; sides of head, except for the rather bare loreal area, chin, throat, and entire underparts brownish fuscous to brownish fuscous-black, the feathers of the lower breast, abdomen, sides, flanks, and thighs narrowly edged with grayish tawny (which wears off leaving worn plumaged birds practically unicolorous below); under tail coverts brownish fuscous broadly tipped and sometimes also crossed by a median bar of white; under wing coverts dark brownish fuscous; cere and base of bill yellowish, tip of bill blackish; iris dark brown; tarsi and toes greenish yellow; claws blackish.[6]

Juvenal (sexes alike).—Above varying from hair brown to fuscous usually darker on the head and nape; the nape, and, to a lesser extent, the crown and occiput, streaked broadly with pale cream-buff to whitish; the scapulars like the back somewhat variegated with cream-buff to pale tawny-buff; upper wing coverts like the back, tipped narrowly and indefinitely mottled on the concealed portion with pale ochraceous; remiges as in the adult; upper tail coverts fuscous barred and tipped with white; tail very different from adult, whitish more or less washed with drab and hair brown, on both webs of the central pair of rectrices and on the outer webs of the others (in one specimen the median pair become almost blackish about a third of the length from the base) narrowly barred with 7–11 bands of fuscous-black, the subterminal one always the broadest, the narrow blackish bands often reduced to a series of spots on the inner webs of the outer rectrices and occasionally even on the outer webs of most of the tail feathers; the rectrices tipped with whitish; a superciliary band of whitish to pale buff borders the dark crown; ocular and postocular stripe fuscous-black; malar area whitish to buff with dusky shaft streaks; chin, throat, breast, abdomen, sides, and flanks white to pale

[6] Swann (Monogr. Birds Prey, i, 1930, 461) writes that this hawk has an immature plumage similar to that of the adult but, ". . . with a second band of white towards base of tail, and without the rufous margins and frecklings on underparts." This is not correct; there is no definite immature plumage; all adults seen have two white tail bands, one broad, and definite; the other narrow, more or less mottled, and varying in definiteness. The presence of the ochraceous ventral edges depends on wear; the last place where the juvenal plumage seems to linger during the post-juvenal molt is the sides of the head, sometimes until the ochraceous ventral edgings are almost worn off!

tawny-buff streaked with fuscous, the dark markings few and narrow on the chin and upper throat, very broad on the lower throat, slightly less so on the sides and flanks, usually fewer and somewhat smaller on the abdomen; thighs narrowly barred with fuscous; under tail coverts white barred with fuscous; under wing coverts buffy white to pale tawny-buff streaked and spotted with fuscous; soft parts apparently as in adult, but iris paler brown.

Natal down.—Not known.

Adult male.—Wing 330–375 (353.6); tail 175–206 (185.4); culmen from cere 25–28 (26.1); tarsus 81–85.5 (82.6); middle toe without claw 42–44 (44.7 mm.) (seven specimens from Cuba and the Isle of Pines).

Adult female.—Wing 358, 376; tail 199, 209; culmen from cere 28, 28; tarsus 82, 86; middle toe without claw 43, 44 mm. (two specimens from the Isle of Pines).

Range.—Definitely known only from Cuba and the Isle of Pines; doubtfully, or at least uncertainly, recorded from Jamaica.

Type locality.—Cuba.

? *Morphnus urubitinga* Gosse, Birds Jamaica, 1847, 19.—Albrecht, Journ. für Orn., 1862, 204 (Jamaica).—March, Proc. Acad. Nat. Sci. Philadelphia, xv, 1863, 3, 153 (Jamaica).

Morphnus urubitinga (not *Falco urubitinga* Gmelin, 1788) Lembeye, Aves Cuba, 1850, 14, pl. 3, fig. 3.

(?) *Orubitinga brasiliensis* Poey, Mem. Real. Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

Urubitinga brasiliensis ? Lembeye, Mem. Real. Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 332 (Cuba).

Hypomorphnus gundlachii Cabanis, Journ. für Orn., 1854 (Extraheft pub. 1855), p. lxxx (Cuba; coll. Berlin Mus.?).—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Gundlach, Journ. für Orn., 1861, 322 (Cuba); Rep. Fisico Nat. Cuba, i, 1865–66, 223; Contr. Orn. Cubana, "1876" (=1873), 40.

Hypomorphnus gundlachi Poey, Mem. Hist. Nat. Cuba, 1854, 426 (Nueva Gerona).—Gundlach, Journ. für Orn., 1871, 365 (Cuba; habits).

Hipomorphnus gundlachi Gundlach, Cat. Aves Cubana, Anales Soc. Esp. Hist. Nat., ii, 1873, 99 (Cuba).

Buteo gundlachii Gray, Hand-list, i, 1869, 9, No. 80.

Urubitinga "gundlachi" Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 2, 1876, 173 (monogr.).

Urubitinga gundlachi Gurney, Ibis, 1876, 488, in text (crit.).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 47 (Cuba; crit.).—Swann, Bull. Brit. Orn. Club, xliii, 1923, 148 (crit.).

Urubitinga gundlachii Gurney, List Diurn. Birds Prey, 1884, 77; Cat. Birds Prey, 1894, 25.—Bangs, Auk, xxii, 1905, 307–309 (Cayo Romano, Puerto Principe, Cuba; crit.; habits).—Todd, Ann. Carnegie Mus., x, 1916, 193 (Los Indios and Caleta Grande, Isle of Pines; crit.; habits).—Swann, Monogr. Birds Prey, i, 1930, 462 (monogr.).

Urubitinga anthracina gundlachii Swann, Synopt. List Accip., pt. 2, 1919, 58; Synop. Accip., ed. 2, 1922, 98.

Urubitinga anthracina (not *Falco anthracinus* Lichtenstein) Sharpe, Cat. Birds Brit. Mus., i, 1874, 215, part (in synonymy); Hand-list, i, 1899, 258, part (Cuba).—Cory, List Birds West Indies, 1885, and revised ed., 1886, 22, part (Cuba); Auk, iv, 1887, 42, part (Cuba; Jamaica?); Birds West Indies, 1889, 200, part (Cuba; Jamaica?); Cat. West Indian Birds, 1892, 99, part (Cuba; Jamaica?).—Gundlach, Orn. Cubana, 1893, 18.—Bangs and Zappey, Amer. Nat., xxxix, 1905, 191 (Isle of Pines).—Chubb, Birds Brit. Guiana; i, 1916, 248, part (Cuba).

? *Urubitinga anthracina* Scott, Auk, viii, 1892, 127 (Jamaica, fide Gosse).—Sclater, Rev. List Birds Jamaica, 1910, 13.

Buteogallus gundlachii Peters, Check-list Birds of World, i, 1931, 245.—Bond, List Birds West Indies, 1940, 24 (West Indies; Cuba, local about Ensenada de Cochinos and cays of north coast of Camagüey; Isle of Pines—common in southern portion); ed. 2, 1945, 24.

Buteogallus gundlachi Bond, Birds West Indies, 1936, 68 (in text; egg meas.), 69, 414 (West Indies; descr.; distr.; local names; crit.).—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 35 (Cuba).

Buteogallus anthracinus gundlachi Bond, Birds West Indies, 1936, 69, in text (West Indies; Cuba and Isle of Pines; doubtful straggler to Jamaica; descr.; distr.).

Genus BUSARELLUS Lesson

Busarellus "La Fresnaie" Lesson, Écho du Monde Savant, sér. 2, viii, Sept. 10, 1843, 468 (*ex* Lafresnaye, Rev. Zool., ii, 1839, 196=nomen nudum). (Type, by monotypy and tautonymy, *Circus busarellus* Vieillot=*Falco nigricollis* Latham.)

Ichthyoborus Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261. (Type, by monotypy, *Circus busarellus* Vieillot=*Falco nigricollis* Latham.)

Icthyoborus (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 17.

Medium-sized Buteolike Haliaeeti (wing about 380–445 mm.) with middle toe less than three-fifths as long as tarsus, the latter three-fourths as long as tail; outstretched feet reaching to beyond tip of tail; four outer primaries with inner webs shallowly and obliquely sinuated; feathers of thighs short, not plumelike, and culmen not longer than claw of hallux.

Bill rather narrow, compressed (its width at base of culmen about three-fifths its height at same point), the distance from base of cere, on top, to tip of maxilla equal to only about three-fourths the length of middle toe, without claw; culmen about as long as claw of hallux, strongly and regularly decurved from base, the maxillary tomium relatively long (approximately half the length of corneous rhinotheca); gonys a little more than two-fifths as long as culmen; nearly straight, slightly ascending terminally; maxillary tomium very slightly if at all sinuated, but usually with a very slight convexity in middle portion; anterior outline of cere directly transverse across base of culmen, slightly advanced and convex in front of nostril thence nearly straight and strongly receding, becoming faintly concave near lower end; nostril obliquely ovate (rather nearer to vertical than horizontal) beveled off anteriorly to edge of cere. Wing relatively large, but rounded, the

secondaries large, but primaries somewhat abbreviated, the longest primary exceeding distal secondary by much less than one-fourth the length of wing; fourth or fourth and fifth primaries, longest, the third and sixth, successively, a little shorter, the first equal to ninth, inner webs of five outer primaries shallowly obliquely sinuated. Tail more than two-fifths (but much less than half) as long as wing, its tip truncate or very slightly double-rounded. Tarsus more than one-fifth as long as wing, more than half as long as tail, feathered above (except on planta tarsi) for about two-fifths its length, the naked portion of acrotarsium with about seven large, obliquely transverse scutella, the planta tarsi with similar scutella except on extreme upper and lower portions, when broken into irregular small scales; middle toe much more than half as long as tarsus; outer toe about as long as inner toe, both extending to or beyond middle of third phalanx of middle toe; hallux decidedly shorter than inner toe, its claw slightly longer than the digit; transverse scutella of toes large and very prominent; under surface of toes spiculate; no trace of web between basal phalanges of outer and middle toes; claws relatively long, strongly curved, much compressed, acute, strongly grooved (concave in transverse section) beneath, distinctly but not excessively graduated in size, that of outer toe about three-fourths as long as that of hallux.

Plumage and coloration.—Plumage moderately firm, the feathers distinctly outlined, those of head and neck sublanceolate; loral region densely covered with short, downlike feathers with small and slender bristlelike tips; secondaries relatively large; plumage of thighs short, not plumelike. Adults mostly cinnamon-rufous, the head and upper neck whitish, a patch across lower foreneck, the remiges and greater part of tail black. Young essentially similar, but whole chest blackish, thighs under tail coverts, back, etc., barred with black, and a blackish postocular stripe.

Range.—Continental tropical America, from southern Mexico to Paraguay and Peru. (Monotypic.)

BUSARELLUS NIGRICOLLIS NIGRICOLLIS (Latham)

Fishing Buzzard

Adult (sexes alike).—Top and sides of the head, chin, and upper throat, and nape whitish to cream to pale ochraceous-buff, darkening to warm buff on the nape; the feathers of the crown, occiput, and nape with dusky shaft streaks which increase in width posteriorly; interscapulars, scapulars, back, rump, upper wing coverts, and upper tail coverts bright orange-cinnamon to bright amber brown, the interscapulars with narrow, the scapulars, median upper wing coverts, and tertials with broad black shaft streaks, the greater upper wing coverts with the blackish shaft streaks diffused over much of the inner web,

and with the outer web sometimes irregularly barred with the same; upper tail coverts with very narrow blackish shaft streaks and more or less barred with dusky on their concealed basal portions; primaries solid black, the secondaries like the back, the outer ones very broadly subterminally banded with black and barred narrowly with the same on their concealed inner webs; tail blackish narrowly tipped with pale

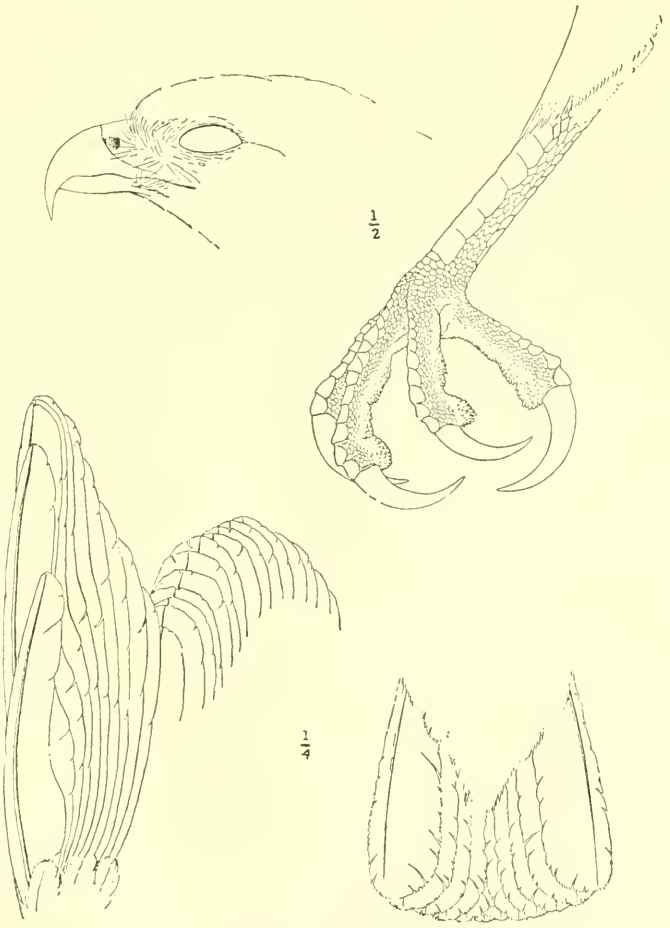

FIGURE 27.—*Busarellus nigricollis.*

orange-cinnamon, crossed by three rather narrow bands of darker orange-cinnamon in their basal half, very pale cinnamomeous at the extreme base; a transverse black jugular crescent on the lower throat; the rest of the underparts like the back, usually paler, somewhat washed with cinnamon-buff on the breast, the feathers of which have narrow blackish shaft streaks; under tail coverts usually slightly lighter than the abdomen, sometimes indefinitely banded with paler

and darker orange-cinnamon to amber brown; under wing coverts bright amber brown; iris bright reddish brown; orbits and gape bluish slate colored; cere and bill blackish; tarsi and toes very pale buffy flesh color to almost whitish with a faint plumbeous wash.

Juvenal (sexes alike).—Head and neck creamy buff, deeper posteriorly and becoming nearly white on forehead, lores, and chin, each feather marked with a distinct lanceolate mesial streak of dusky, except on the whitish parts named above, where the feathers have merely very narrow, dusky shaft streaks; lower parts, rump, and upper tail coverts rusty ochraceous to tawny buff; lower part of throat crossed by a somewhat crescentic patch or bar of dull black; rump and upper tail coverts ochraceous, marked with arrowheads and connected bars of dusky; basal half of tail rufous, crossed by several narrow bands of black, these narrower on the inner webs, which are ochraceous instead of rufous; terminal half of tail dusky black, the tip (narrowly) ochraceous; back, scapulars, and wings rich chestnut-rufous, each feather dusky centrally; the tertials and inner secondaries crossed by narrow bars of dusky; primaries and outer secondaries nearly uniform black, except basally on their inner webs where mottled with rufescent; upper breast pale tawny-buff to pale ochraceous, each feather with a blackish or brownish shaft stripe; lower breast, abdomen, sides, flanks, and thighs clay color to Mikado brown, usually darkest on lower breast, and all the feathers narrowly barred with dark sepia to fuscous; under tail coverts much paler—tawny-buff, without darker bars; under wing coverts chestnut barred with blackish; cere and bill black, orbits and gape dark slate; iris brown; tarsi and toes very pale flesh color to whitish.

Natal down.—Not known.

Adult male.—Wing 358–383 (378.1); tail 157–182 (171.9); culmen from cere 26–30 (27.9); tarsus 72–84 (80.1); middle toe without claw 45–53 (48.6 mm.).[7]

Adult female.—Wing 380–405 (392.3); tail 175–183 (180.4); culmen from cere 28–30.5 (29.3); tarsus 78–89 (85.3); middle toe without claw 46–54 (49.6 mm.).[8]

Range.—Resident from the states of Sinaloa, Veracruz, and Guerrero, in Mexico; south through British Honduas (Tally Pan, Manatee River); Guatemala (Hacienda California, Santa Ana Mixtán, Dueñas, Lake Petén); El Salvador (Lake Olomega, San Sebastián, Río San Miguel, Puerto del Triunfo, Colima, Barra de Santiago); Nicaragua (Ometepe, Greytown); Costa Rica (La Palma de Nicoya, Las Trojas, Liberia, Guanacaste); Panama (Loma del León); eastern Colombia

[7] Eight specimens from Mexico, Costa Rica, Panama, Colombia, and Surinam.

[8] Seven specimens from Mexico, British Honduras, Nicaragua, Costa Rica, Surinam, Brazil, and Ecuador.

(Santa Marta district, Río Atrato, Río Truando, Calaman); Venezuela (Caicara, La Brea, Orinoco Valley); all of Brazil (records from Amazonas, Piauhy, Rio de Janeiro, São Paulo, Matto Grosso, etc.); the Guianas, eastern Peru (Sarayacu, Santa Cruz); to Bolivia (provinces of Chiquitos and Moxos); apparently not recorded from Ecuador, although Sarayacu is a rather indefinite locality on the Ecuador-Peru border area. Farther south (Paraguay and northern Argentina) this bird is replaced by a slightly larger but, on the whole, poorly characterized form, *Busarellus nigricollis leucocephalus* Vieillot.[9]

Type locality.—Cayenne.

Falco nigricollis Latham, Index Orn., i, 1790, 35 (Cayenne; based on *Black-necked Falcon* Latham, Synopsis, Suppl., p. 30, 100).—Daudin, Traité d'Orn., ii, 1800, 111 (Cayenne).—Vieillot, Nouv. Dict. Hist. Nat., xxiii, 1818, 446 (Guiana).

Buteo nigricollis Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 473.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 37 (Brazil); Hand-list, i, 1869, 9, No. 75.—Kaup, *in* Jardine's Contr. Orn., 1850, 76.—Pucheran, Rev. Mag. Zool., ii, 1850, 85 (crit. on type).—Burmeister, Syst. Übers. Th. Bras., ii, 1856, 47.—Schlegel, Mus. Pays-Bas, ii, No. 6, livr. 2, 1863, 17 (monogr.); No. 36, livr. 10, 1873, 110.—Lawrence, Mem. Boston Soc. Nat. Hist., 1874, 302 (Mazatlán, Sinaloa; habits).—Koenigswald, Journ. für Orn., 1896, 383 (São Paulo, s. Brazil).

Morphnus nigricollis Gray, Gen. Birds, iii, App., 1849, 1.

Buteogallus nigricollis Strickland, Orn. Syn., 1855, 43.—Sclater and Salvin, Ibis, 1859, 216 (Santa Ana Mixtán, Guatemala); Proc. Zool. Soc. London, 1866, 198 (Sarayacu, e. Peru); 1873, 302 (Sarayacu and Santa Cruz, e. Peru; habits); Nom. Av. Neotr., 1873, 119 (Guatemala-Brazil); Proc. Zool. Soc. London, 1879, 637 (Peru; Chiquitos and Moxos, Bolivia).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, vol. 12, 1860, 132 (Río Truando, Colombia).—Sclater, Proc. Zool. Soc. London, 1860, 253 (State of Veracruz, e. Mexico).—Taczanowski, Orn. Pérou, i, 1884, 111.

Urubitinga nigricollis Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Mexiana Island, Brazil).

Ichthyoborus nigricollis Pelzeln, Orn. Bras., Abth. 1, 1868, 3; Abth. 4, 1870, 344.—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 69 (Brazil).—Heine and Reichenow, Nom. Mus. Heine Orn., 1890, 271 (Surinam; Venezuela).

Busarellus nigricollis Sharpe, Cat. Birds Brit. Mus., i, 1874, 211 (Brazil; Mexiana Island, Brazil; Demerara, British Guiana); Hand-list, i, 1899, 258.—Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser 2, No. 2, 1876, 142, part (Brazil; Amazonia; Río Truando, Colombia; Mazatlán, Sinaloa; monogr.; habits); Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica; descr. young).—Gurney, Ibis, 1876, 486 (descr. young); List Diurn. Birds Prey, 1884, 78; Cat. Birds Prey, 1894, 25.—Nutting, Proc. U. S. Nat. Mus, v, 1882, 404 (La Palma de Nicoya; habits).—Salvin, Ibis, 1886, 74 (Brit. Guiana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Las Trojas and Liberia, sw. Costa Rica).—Berlepsch, Journ. für Orn., 1889, 317 (Sarayacu, ne. Ecuador); Nov. Zool., xv, 1908, 293 (Cayenne).—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Richmond, Proc. U. S. Nat. Mus., xvi,

[9] **Busarellus nigricollis australis** Swann, Synop. Accip., ed. 2, 1922, 95 (Morovi (=Mocovi, Chaco), Argentina), auct. =*Circus leucocephalus* Vieillot.

1893, 522 (Greytown, Nicaragua).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Veracruz; rare).—Ihering, Rev. Mus. Paulista, iii, 1899, 354 (Piracicaba, São Paulo, s. Brazil); iv, 1900, 162 (Cantagallo and Novo Fribourgo, São Paulo).—Bangs, Proc. New England Zool. Club, ii, 1900, 15 (Loma del Leon, Panama).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 85 (Mazatlán and Presidio de Mazatlán, Sinaloa; Tlacotalpan, Veracruz; Huamachal, Santa Ana Mixtán, Dueñas, and Lake Petén, Guatemala; Ometepe and Greytown, Nicaragua; La Palma de Nicoya, Las Trojas, and Liberia, Costa Rica; Panama; Río Truando, Colombia; Guiana; Amazonia).—Berlepsch, and Hartert, Nov. Zool., ix, 1902, 113 (Caicara and Quiribana de Caicara, Venezuela: colors of unfeathered parts).—Hellmayr, Abh. Bayer. Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 568 (crit. as to *Aquila milvoides* Spix); Nov. Zool., xiv, 1907, 29 (Urucurituba, Brazil), 38 (Obidos, Brazil), 406 (Humaytha, Rio Madeira, Brazil).—Hagmann, Journ. für Orn., 1906, 108 (Mexiana Island, Brazil; descr. eggs); Zool. Jahrb., 1907, 21 (Mexiana Island).—Ihering and Ihering, Av. Brazil, 1907, 91 (São Paulo, Rio de Janeiro, Matto Grosso, Rio Branco, Pará, and Amazonia).—Beebe, Zoologica, i, 1909, 80 (La Brea, ne. Venezuela; habits).—Carriker, Ann. Carnegie Mus., vi, 1910, 460 (Gulf of Nicoya and Guanacaste, Costa Rica).—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 90 (Lagoa Boquiera, Paranagua, etc., ne. Brazil).—Brabourne and Chubb, Birds South Amer., i, 1912, 68 (Paraguay; Brazil; Peru; Guiana).—Reichenow, Die Vögel, i, 1913, 389.—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 342 (middle Orinoco region, Venezuela; fresh colors of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 243 (habits).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 247 (Calaman and Río Atrato, nw. Colombia).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 36 (Paramaribo, Surinam; crit.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 249 (Panama Canal Zone); lxxx, 1928, 154 (Pará, Brazil).—Swann, Synopt. List Accip., pt. 2, 1919, 57.—Hellmayr, Nov. Zool., xxviii, 1921, 185.—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 155 (Bonda, Mamatoco, and Trojas de Cataca, Santa Marta, Colombia).—Young, Ibis, 1929, 9 (coast of British Guiana; habits; food).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 367 (near Ciénaga Sevillano, Río Frío, Colombia).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 156 (distribution in Guatemala; Hacienda California; crit.).—Carriker and de Schauensee, Proc. Acad. Nat. Sci., Philadelphia, lxxxvii, 1935, 415 (Guatemala: Quirigua; spec.).—Wetmore, Auk, lii, 1935, 329, in text (Venezuela: Los Tamarindos; pre-Columbian bones).—del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas: Matastepec; spec.).

Busarellus nigricollis nigricollis Swann, Synop. Accip., pt. 2, 1922, 95; Monogr. Birds Prey, i, 1930, 446 (monogr.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 135 (descr.; habits; Panama).—Hellmayr, Publ. Field Mus. Nat. Hist., Zool. ser. xii, No. 18, 1929, 461 (Piauhy, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 109 (crit.; distr.; Matto Grosso, Brazil).—Peters, Check-list Birds of World, i, 1931, 245.—Stone and Roberts, Proc. Acad. Nat. Sci. Philadelphia, lxxxvi, 1934, 372 (Matto Grosso, Brazil; spec.; plum.; colors of soft parts).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 300 (Panama; locally in swampy rivers; western part and Darién).—Deignan, Auk, liii, 1936, 188, in text (Honduras; spec.; descr.).—Pinto, Cat. Aves Brasil; Rev. Mus. Paulista, xxii, 1938, 78 (distr.).—Sassi, Temminckia, iii, 1938, 301 (Costa Rica: Bebedero; spec.).—Dugand, Rev. Acad. Colomb., iii, 1940, 220 (common along Atlantic (Carib-

bean) coast of Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, No. 3, 1941, 114 (Lower Amazonia; Lago Grande; spec.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 28 (Mexico: Tabasco—La Palma; Campeche—Palizada spec.; crit.).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxii, No. 3, 1945, 28 (Rio Jurua, w. Brazil; spec.; meas.); Kungl. Svenska Vet.-Akad. Handl., xxiii, No. 1, 1945, 53 (n. Bolivia; spec.; meas.).—Dugand and Borrero, Caldasia, iv, 1946, 140 (Colombia, Isla Ronda; spec.).

Falco busarellus Daudin, Traité d'Orn., ii, 1800, 168 (Cayenne).—Latham, Suppl. Index Orn., 1801, vi.—Maximilian, Beitr. Naturg. Bras., i, 1830, 213 (Cabo Frio, Rio Parahyba, Campos, Goaytacaceo, Marica, Lagoa Feia, and Coral de Battuba, Brazil).

Falco buzarellus Shaw, Gen. Zool., vii, pt. 1, 1809, 203 (Cayenne).

Circus busarellus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 453 (Guiana); Encycl. Méth., iii, 1823, 1212.

Buteo busarellus Vigors, Zool. Journ., i, 1824, 340.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 46 (Cayenne).—Lesson, Traité d'Orn., 1831, 80.—d'Orbigny, Voy. Amér. Mérid, iv, pt. 3, 1839, 103, part (provinces of Chiquitos and Moxos, Bolivia).—D'Orbigny and Lafresnaye, Synop. Avium, 1839, 6, part (Chiquitos and Moxos, Bolivia).—Hellmayr, Nov. Zool., xxviii, 1921, 185 (syn.).

Buteo (*Ichthyoborus*) *busarellus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261 (South America).

Ichthyoborus busarellus Kaup, Isis, 1847, 84 *bis*, footnote.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 739.—Bonaparte, Rev. Mag. Zool. vi, 1854, 533.

Buteogallus busarellus Bonaparte, Consp. Gen. Av., i, 1850, 17.

Falco melanobronchos Shaw, Gen. Zool., vii, pt. 1, 1809, 167 (Cayenne; new name for *Falco nigricollis* Latham).

Circus leucocephalus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 465.

Aquila milvoides Spix, Av. Bras., i, 1824, 5, pl. 1 d (Rio Amazon, Brazil).

Morphnus milvoides Cuvier, Règne Anim., i, 1829, 330.

Haliaeëtus milvoides Gray, List Spec. Brit. Mus., pt. 1, Accip., 1844, 12.

Buteo (*Ichthyoborus*) *milvoides* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261 (South America).

Busarellus nigricollis macropus Swann, Synop. Accip, ed. 2, 1922, 95 (Tally Pan, Manatee River, British Honduras; coll. Mus. Comp. Zool.); Monogr. Birds of Prey, i, 1930, 448 (monogr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 190 (type spec. in Mus. Comp. Zool. = *Busarellus nigricollis nigricollis*).

Busarellus nigricollis australis (not of Swann) Bond and de Schauensee, Proc. Acad. Nat. Sci. Philadelphia, xcv, 1943, 178 (Chatarona, Bolivia).

Genus URUBITORNIS Verreaux

Urubitornis Verreaux, Athenaeum, No. 1493, June 7, 1856, 717; Proc. Zool. Soc. London, Nov. 11, 1856, 145. (Type, by monotypy, *Circaëtus solitarius* Tschudi.)

Large, heavily built "Urubitingas" (wing up to 550 mm.) with outstretched feet extending to or beyond tip of tail, relatively short primaries, rather large, circular nostrils, and long, stout tarsi, resembling *Hypomorphnus* but much larger and more stoutly built, the tarsi more robust and without a continuous series of transverse scutella

on either acrotarsium or planta tarsi, and with a short nuchal crest of cuneate feathers.

Bill rather stout, compressed, its depth at anterior margin of cere about twice its width at same point; culmen gradually decurved from base, decidedly longer than claw of hallux, the maxillary unguis moderately produced and acute; maxillary tomium slightly but distinctly convex ("festooned") behind the unguinal concavity, but not ascending proximally; gonys slightly convex, slightly ascending terminally, about half as long as culmen; top of cere broad, slightly arched, much higher at base, about half as long as culmen; latero-anterior margin of cere slightly but distinctly convex, with lower end decidedly posterior to upper. Nostril relatively large, nearly circular, placed well back from anterior margin of cere. Wing moderate, with secondaries relatively long and broad, the longest primary exceeding distal secondary by between one-third and one-fourth the length of wing; fourth and fifth primaries longest, the sixth longer than third, the first (outermost) about equal to eighth; inner webs of six or seven outer primaries rather deeply sinuated. Tail about half as long as wing, its tip truncate or slightly emarginate, the rectrices (12) relatively broad, with broadly rounded tips, slightly subacuminate in median portion. Tarsi stout, a little less than one-fourth as long as wing, for greater part covered with rough, irregularly hexagonal scales, but several (about 6–8) large broad transverse scutella on middle portion of acrotarsium, and with the scales on middle portion of planta tarsi much larger, though scarcely transverse; middle toe a little less than half as long as tarsus, its claw about half as long as the digit; lateral toes about equal in length, their ends reaching to or slightly beyond middle of third phalanx of middle toe; hallux much shorter than lateral toes, its claw nearly as long as the digit; claws relatively small, not strongly curved, moderately acute, moderately graduated in size.

Plumage and coloration.—Plumage full and compact though rather soft, the contour feathers distinctly outlined; secondaries very long and broad, the longer proximal ones reaching to much beyond tip of outermost primary (in closed wing); feathers of occiput and nape sublanceolate, longer on nape, where forming a short, pointed nuchal crest; loral region nude, but with sparse bristles, these larger below, where overhanging rictus, and on cere, where strongly recurved; plumage of thighs rather short, forming moderately well developed "pantalettes."

Adults.—Plain deep slate-gray to blackish slate, becoming black or slate-black on primaries and tail, the latter crossed near middle by a broad band of white mottled with gray and (as are also the longer upper tail-coverts) narrowly tipped with the same.

Young.—Dusky brown above, the feathers more or less margined and otherwise variegated with tawny or rusty; head, neck, and underparts mostly tawny or ochraceous, variegated with dusky brown marking mostly of longitudinal tendency, tail grayish brown, mottled or irregularly marked with darker.

Range.—Western and northern South America and northward to Guatemala and to southern Sonora. (One species with two races.)

KEY TO THE RACES OF URUBITORNIS SOLITARIA

a. Larger, wing of ♂ over 530 mm., of ♀ 550 mm.; under tail coverts distinctly barred and mottled with grayish white (southeastern Sonora).
U. s. sheffleri (p. 420)

aa. Smaller, wing of ♂ under 500 mm.; under tail coverts nearly uniform blackish (Oaxaca and Guatemala south to Venezuela, Colombia, Ecuador, and Peru).
U. s. solitaria (p. 417)

URUBITORNIS SOLITARIA SOLITARIA (Tschudi)

Southern Solitary Eagle

Adult male.—Nearly uniform slate color, inclining to slate-gray on some of the wing feathers, especially outer webs of secondaries, which are indistinctly banded with darker, the head and neck somewhat darker, inclining to blackish slate; primaries blackish slate or slate-black distally, plain slate-gray anterior to their sinuation, the corresponding portion of their inner webs banded with slate-gray and slate color or blackish slate, as are also the inner webs of secondaries, the latter with a broad terminal area of blackish slate; longer upper tail coverts narrowly tipped with white, clouded with gray, and with a few concealed bars or transverse mottlings of gray and white on basal portion: tail black, narrowly tipped with white shaded with gray, crossed near middle by an uninterrupted band (about 40–45 mm. wide) of white mottled or shaded with gray, and with traces of a narrow band of same anterior to this, the latter more distinct on inner webs of rectrices; no white on under surface of wing, which are wholly deep slate-gray anteriorly shading into black or slate-black distally, the slate-gray on inner webs of primaries more or less mottled, on broader portion, with darker; bill blackish, the basal half of mandible and extreme lower posterior angle of maxilla pale yellowish gray (in dried skin); cere, loral region, and superciliary shield light yellowish gray (yellow in life?); iris dark brown; [10] legs and feet light yellowish gray (yellow in life).[10]

Adult female.—Similar to adult male, but with a very slight fuscous cast on crown, nape, upper wing coverts, and, to a very small extent, on the underparts generally, the white tail band broader.

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[10] According to Tschudi (*cit. infra*).

Immature.—Said to be like the adult female, that is, with a slight brownish cast; no specimens in this plumage examined.

Juvenal male.—Forehead and superciliaries light buff somewhat streaked with black (especially the forehead); crown, occiput, and nape black, many of the feathers edged with light buff to pale ochra-

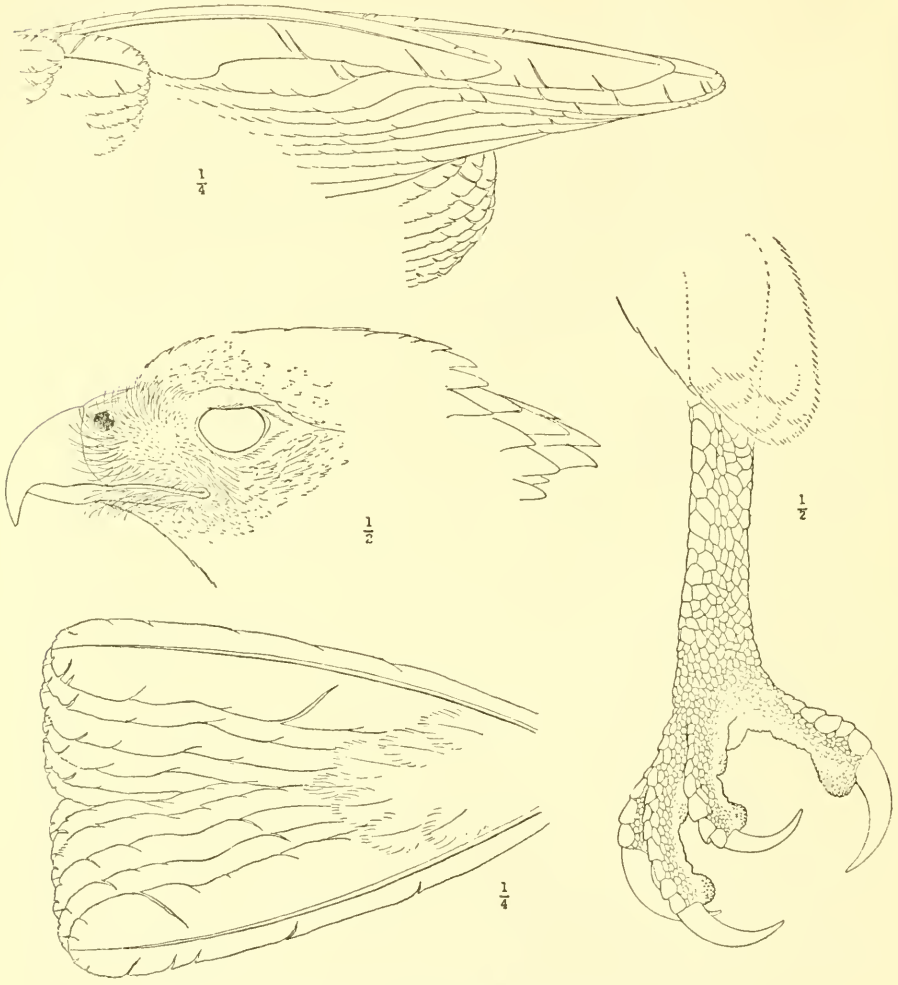

FIGURE 28.—*Urubitornis solitaria.*

ceous-buff giving a rather streaked appearance; interscapulars and lesser upper wing coverts fuscous-black becoming blackish with a faint bluish sheen on their terminal portions; back fuscous, more or less mottled with pale buff and whitish, rump and upper tail coverts the same, the mottling chiefly on the basal portions of the feathers; median and greater upper wing coverts fuscous on their terminal

halves, buffy brown to hair brown basally and the terminal darker areas edged and laterally mottled with the same; secondaries and inner primaries fuscous, paling on the inner margin of the inner web to drab, both webs obscurely but thickly speckled with fuscous-black; six outer primaries broadly black terminally (from the tip to opposite the emargination on the inner web); then fuscous on the outer web and paling abruptly to white on the basal part of the inner web, the lighter areas of all the remiges still paler on the under surface; bend of the wing pale ochraceous-buff mixed with fuscous-black; rectrices dusky grayish hair brown, brownest next to the shaft, whitish at extreme base, the inner webs of all but the median pair paling to pale ochraceous-buff internally, both webs abundantly flecked with fuscous-black to black, subterminally broadly fuscous-black (almost solidly so), narrowly tipped with whitish; a black line running back from the eye and widening posteriorly on the side of the neck under the broadened buffy superciliary; cheeks and auriculars pale ochraceous-buff with narrow shaft streaks of black; chin and middle of upper throat pale ochraceous-buff with very fine blackish shaft streaks; lower throat and breast black, the median part streaked with ochraceous-buff, all the black feathers ochraceous-buff basally; abdomen, sides, and under tail coverts light ochraceous-buff to pinkish cinnamon heavily streaked with broad fuscous-black shaft streaks, the streaks becoming telescoped into broad bars on the under tail coverts; flanks and thighs fuscous black, the feathers narrowly edged with rufescent; under wing coverts pale ochraceous-buff subterminally blotched with blackish and tipped with slightly darker ochraceous-buff; iris light yellow; bill blackish; tarsi and toes dirty greenish white; claws, blackish.

Natal down.—Unknown.

Adult male.—Wing 485–512 (502.3); tail 218–234 (227); culmen from cere 35–40.6 (37.2); tarsus 119–131 (123); middle toe without claw 60–62 mm. (3 specimens).

Adult female.—Wing 520–525 (522.5); tail 250–270 (261.3); culmen from cere 40–42 (41.3); tarsus 128–135 (131.8); middle toe without claw 52–68 (59.1 mm.).[11]

Range.—Resident from southern Mexico (Oaxaca: Tehuantepec; Jalisco (Los Mesos)); Guatemala (San Gerónimo); Panama (Calobre, Veraguas): south to Colombia (Agua Dulce, Santa Marta; Sierra Perijá, Magdalena; Antioquia); Venezuela (Caracas); Ecuador (Río Topo; Sabanilla; Chiguinda); and Peru (Chanchamayo; Amable María; Santo Domingo; Inca Mine); apparently scarce (or difficult to find) throughout its range.

[11] Six specimens (including the measurements of birds in the Berlin Museum published by Kothe (Orn. Monatsb., xx, 1912, 5).

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Type locality.—Peru.

Circaetus solitarius Tschudi, *in* Wiegmann's Archiv. für Naturg., x, pt. 1, 1844, 264 (Peru); Fauna Peruana, Aves, 1844, 94, pl. 2.

Urubitornis solitarius Bonaparte, Rev. Mag. Zool., vi, 1854, 537.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 267 (Caracas, Venezuela).—Kothe, Orn. Monatsb., xx, 1912, 4 (meas.; crit.).—Swann, Synop. Accip., ed. 2, 1922, 103 (Chile; Peru; Ecuador; Colombia); Monogr. Birds Prey, i, 1930, 477 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 155 (Agua Dulce, Santa Marta, Colombia; crit.; descr.; meas.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 158 (San Gerónimo, Guatemala).—Hellmayr, Birds Chile, 1932, 279 (no authentic record for Chile).

Urubitornis solitaria Verreaux, Proc. Zool. Soc. London, 1856, 145 (Santa Marta, Colombia; Río Urumore, Moxos, Bolivia; descr.; crit.).—Salvin, Proc. Zool. Soc. London, 1870, 214 (Calobre, Veraguas, Panama).—Sclater and Salvin, Nom. Av. Neotr., 1873, 119 (Peru; Colombia; Veraguas).—Peters, Check-list Birds of World, i, 1931, 246.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 300 (1 record for Veraguas; Mexico to Chile; rare).—Lehmann, Caldasia, ii, No. 7, 1943, 187 (spec.; Munchique, Tambo, Cauca, Colombia; plum.; photo).

Harpyhaliaëtus solitarius Gurney, Ibis, 1876, 490, in text (Chile; Peru; Antioquia, Colombia; Veraguas; San Gerónimo, Guatemala; s. Mexico?; crit., descr., etc.); List Diurn. Birds Prey, 1884, 77 (crit.); Cat. Birds Prey, 1894, 25.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 87 (Tehuantepec, Oaxaca; San Gerónimo, Guatemala; Calobre, Veraguas; Colombia; Venezuela; Ecuador; Peru; Chile).—Brabourne and Chubb, Birds South Amer., i, 1912, 70 (Chile; Peru; Ecuador; Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 235 (Sabanilla, Ecuador; Santo Domingo, se. Peru).

Harpyhaliaëtus coronatus solitarius Swann, Synopt. List Accip., pt. 1, 1919, 61.

Circaëtus coronatus Gray, Hand-list, i, 1869, 14, part (Peru).

Harpyhaliaëtus coronatus (not *Harpyia coronata* Vieillot, 1817) Sharpe, Cat. Birds Brit. Mus., i, 1874, 221, part (Chile); Hand-list, i, 1899, 259, part.—Taczanowski, Orn. Pérou, i, 1884, 129.—Taczanowski and Berlepsch, Proc. Zool. Soc. London, 1885, 110 (Río Topo, Ecuador).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 59 (Chanchamayo and Amable María, Peru).

Geranoëtus melanoleucus (errore) Allen, Bull. Amer. Mus. Nat. Hist., xiii, 1900, 130 (Agua Dulce, Santa Marta, Colombia).

URUBITORNIS SOLITARIA SHEFFLERI van Rossem

Northern Solitary Eagle

Adult.—Similar to that of the corresponding sex of the nominate race, but larger, not only in linear measurements, but also in the greater bulk of the tarsi and toes; the anterior upperparts of the body slightly darker, blackish slate instead of slate-gray; outer primaries finely mottled or variegated with grayish, instead of barred, on their basal portions; rectrices with a second subbasal white band about 10–12 mm. wide across both webs of the outermost pair, and becoming discontinuous and less distinct on the next three inner pairs;

under tail coverts distinctly barred and mottled with grayish white (nearly uniform blackish in the nominate race).

Other plumages unknown.

Adult male.—Wing 530, tail 252, culmen from cere 39.5; tarsus 132; middle toe without claw 62 mm. (1 spec.).

Adult female.—Wing 552, tail 260, culmen from cere 43.6; tarsus 131; middle toe without claw 66 mm. (1 spec., the type).

Known only from the mountains of extreme southeastern Sonora near the Chihuahua boundary, from about latitude 27°40′ N. southward an unknown distance.

Type locality.—Extreme southeastern Sonora, near the Chihuahua boundary (Guirocoba).

Urubitornis solitaria sheffleri VAN ROSSEM, Proc. Biol. Soc. Washington, lxi, 1948, 67 (orig. descr.; meas.; crit.).

Genus MORPHNUS Dumont

Morphnus "Cuvier" DUMONT, Dict. Sci. Nat., ed. 2, i, 1816, Suppl., 88. (Type, as designated by Chubb, 1916, *Falco guyanensis* Daudin.)
Morphinus (emendation) FLEMING, Philos. Zool., ii, 1822, 235.
Morphyus (emendation) BOIE, Isis, 1822, 548.
Morpheus (emendation) KAUP, Isis, 1847, 84 (bis).
Morphus (emendation) ANTINORI, Cat. Coll. Ucc. Africa, 1864, 16.

Large crested eagles (wing about 440–515 mm.), resembling *Harpia* but much more slender, the tail relatively longer (nearly as long as wing), tarsus more than twice as long as middle toe (without claw) and with transverse scutella of acrotarsium and planta tarsi forming, each, a continuous uniform series, crest plumes narrower, and primaries considerably exceeding secondaries in length.

Bill moderate in size, relatively short and deep, its depth at anterior margin of cere equal to more than two-thirds the length (curve) of culmen, that of maxilla alone equal to nearly half the curve of culmen; culmen very strongly curved from base, the terminal portion curving slightly backward; gonys about half as long as chord of culmen, distinctly convex, slightly ascending terminally; anterior outline of cere forming a nearly straight vertical line, but slightly convex in middle portion and faintly concave below; nostril nearly vertical, elliptical, beveled off anteriorly to edge of cere, midway between upper and lower edges of latter. Wing relatively short, broad, and rounded, but longest primaries exceeding distal secondaries by about one-fourth the length of wing; fifth to seventh (usually sixth?) primaries longest, the fourth about equal to eighth, the first (outermost) shortest; inner webs of seven outer primaries shallowly sinuated, the outer webs of second to ninth sinuated. Tail nearly as long as wing (about eight-ninths as long), rounded, the rectrices, 10 in number, very broad, with broadly rounded tips. Tarsus stout, nearly one-

fourth as long as wing, the upper third feathered in front, the acrotarsium with a continuous series of large, overlapping, transverse scutella, the planta tarsi also with a continuous series of large transverse scutella, the intervening lateral spaces with rather large irregularly hexagonal or rhomboidal scales, then much smaller on lower portion, the extreme lower part of acrotarsium and base of toes with more roundish scales; middle toe (without claw) less than half as long as tarsus, the lateral toes much shorter, the outer slightly longer than the inner; hallux decidedly shorter than inner toe, very strong; upper surface of toes with large transverse scutella, their edges prominent; claws conspicuously graduated in size, that of the hallux (largest) exceeding the digit in length, that of the outer toe (smallest) much less than half as long.

Plumage and coloration.—Plumage in general full and soft, as in *Harpia*, loral region rather scantily covered with small, short feathers with bristlelike tips, the latter larger along anterior margin; eyelids with small but distinct lashes; malar apex with rather long antrorse or semierect bristles; feathers of posterior portion of head and neck elongated, as in *Harpia*, but much narrower, with more narrowly rounded tips; secondaries greatly developed, relatively very broad, but the longest falling considerably short of tips of longest primaries; feathers of thighs short and dense (as in *Harpia*), continued below, in a broad angle, over upper portion (about upper third) of acrotarsium. Adults with upperparts and chest mostly blackish, the head usually grayish, paler on throat; underparts of body barred or banded with white and blackish or rufous, in varying relative proportion, rarely almost immaculate white; tail crossed by about three to five bands of mottled grayish. Young with head, neck, and underparts white or mostly so, and upperparts mottled gray and blackish.

Range.—Tropical South America, north to Honduras (two species, which may eventually prove to be color phases of one form).

KEY TO THE SPECIES OF MORPHNUS

a. Abdomen, or at least under tail coverts, with black bands (Panama to Bolivia).
  b. Abdomen heavily barred with black.
    c. Tail with 4 broad black bands; upperparts black.
      M. taeniatus, ad. (p. 427)
    cc. Tail with 5 broad black bands; upperparts fuscous to fuscous-black.
      M. taeniatus, imm. (p. 428)
  bb. Abdomen unbarred or with only a few blackish spots on lower abdomen and thighs----------**M. taeniatus**, juv. (p. 428)
aa. Abdomen and under tail coverts with no black bands (Honduras to Argentina).
  b. Upperparts generally whitish; tail with 10–12 bars of blackish.
    M. guianensis, juv. (p. 425)
  bb. Upperparts generally blackish, plain or mottled with grayish; tail with 4–5 black bars.

c. Upperparts mottled with grayish; abdomen unbarred.
d. Breast white like rest of underparts_____**M. guianensis,** imm. (p. 425)
dd. Breast dusky grayish hair brown, contrasting with white abdomen.
M. guianensis, subad. (p. 425)
cc. Upperparts not mottled with grayish; abdomen with faint rufescent bars.
M. guianensis, ad. (p. 423)

MORPHNUS GUIANENSIS (Daudin)

Guiana Crested Eagle

Adult male.—Forehead and superciliary margin of crown white slightly washed with pale pinkish buff; crown, auriculars, and nape smoke gray, the feathers tipped with dirty pinkish buff and becoming darker on the occiput and nape where they are mostly drab instead of smoke gray; a black postocular streak separates the sides of the occiput from the auriculars; occipital crest plumes black, tipped with dirty buffy white and very broadly white basally (about three-fifths of their length); scapulars, interscapulars, and back black with a blue-slate cast; lesser upper wing coverts like the interscapulars but tipped with white (the white tips often slightly flecked with hair brown); median upper wing coverts dirty white washed with light drab and flecked with hair brown and crossed on their distal (exposed) halves by three broad chaetura black bands; greater upper primary coverts blackish with a bluish or greenish sheen, fading to hair brown and to whitish on the (concealed) inner web; greater upper secondary coverts like the median ones; secondaries fuscous-black very narrowly tipped with grayish white, subterminally blackish, and paling toward the base on the inner web to whitish much freckled with fuscous, some of the freckles resolving themselves into irregular bars on the outer secondaries; primaries externally blackish, hair brown on the inner webs paling to white basally, the inner webs broadly tipped with blackish and crossed by two black bands anterior to this in the distal half of their length; rump and upper tail coverts like the back, but conspicuously tipped with white; rectrices pale smoke gray crossed by four very broad black bands (the black bands broader than the gray interspaces), narrowly tipped with pale smoke gray, the interspaces mottled with darker, the feathers narrowly whitish basally; chin and middle of throat white; sides of throat and cheeks washed with pale ashy buff; lower throat and breast dark smoke gray with a faint wash of hair brown; abdomen, sides, flanks, thighs, and under tail coverts white, sometimes washed with pale buffy, and barred narrowly with cinnamon to sayal brown, the brown bars much narrower than the white interspaces and usually palest on the under tail coverts, darkest on the thighs; under wing coverts almost pure white, very sparsely and faintly barred with very pale cinnamon; under side of wing whitish where gray above; bare loreal space blackish

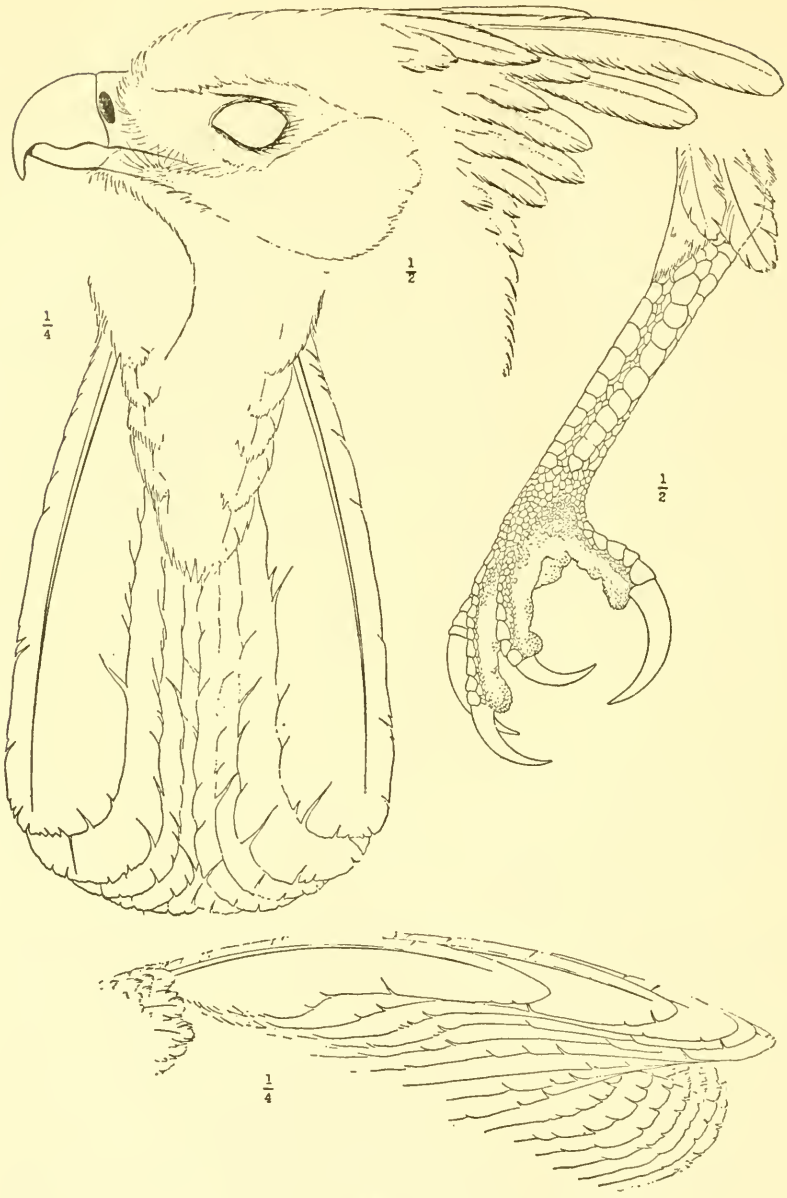

FIGURE 29.—*Morphnus guianensis.*

blue; iris said to be yellowish to grayish yellow; cere and bill plumbeous black; tarsi and toes yellow; claws blackish.

Adult female.—Similar to the adult male, but larger and with the crown and occiput darker, dusky hair brown; the sides of the neck

and the whole breast more washed with brownish and the rectrices crossed by five black bands.

Subadult male.—Head as in adult, but paler, more buffy white, less smoke gray above; occipital crest plumes only slightly elongated and with only a small, irregular, subterminal black patch; scapulars and interscapulars as in adult, but very broadly fuscous mottled with white basally and narrowly edged with fuscous to dark hair brown; lesser upper wing coverts pale gray-drab finely freckled with darker and in some cases blotched with blackish; median and greater upper wing coverts the same, but heavily blotched with black, the outer greater primary coverts and the alula black tipped with fuscous; remiges much more plainly banded black and mottled hair brown, the secondaries and inner primaries crossed by five broad black bands, the outer primaries by four; the folded wings give the upperparts a decidedly mottled appearance; back, rump, and upper tail coverts basally white, distally ashy gray mottled and subterminally broadly barred with blackish; rectrices as in adult male; underparts as in adult male, but the pectoral area somewhat paler and with no cinnamon bars on the abdomen, sides, flanks, thighs, under tail coverts or under wing coverts.

Subadult female.—Similar to the subadult male, but somewhat darker on the crown, occiput, nape, and pectoral area.

Immature male.[12]—Similar to the subadult male, but still paler, more whitish, on the top of the head, and the entire underparts, including the breast, white, the breast faintly freckled with smoke gray.

Juvenal male.[13]—Feathered parts of entire head, nape, interscapulars, back, rump, upper tail coverts, and entire underparts white, the crown and nape washed with smoke gray; the abdomen slightly tinged with buffy; scapulars and upper wing coverts white washed with smoke gray, the scapulars and the greater coverts much freckled with hair brown and chaetura drab; inner secondaries whitish freckled and crossed by eight to ten irregular bars of hair brown to fuscous or chaetura drab; other secondaries and inner primaries as in the immature male, but the gray interspaces paler, and broadly tipped with white; outer primaries similar to those of immature plumage but with more numerous dark bands and with the interspaces greatly reduced in width; rectrices smoke gray broadly tipped with white and crossed by twelve or more irregular black bands, the bands becoming wider and more oblique toward the base, the light interspaces freckled with

[12] No females in this plumage seen.

[13] No juvenal females seen. Dugand (Caldasia, No. 3, December 1941, p. 57) describes one as paler above than the juvenal male, but otherwise essentially similar to it.

hair brown; iris brown; tarsi and toes yellow; bill and claws blackish.

Natal down.—Not known.

Adult male.—Wing 430–449 (435.3); tail 360–385 (376.1); culmen from cere 29–34 (31.1); tarsus 103–115 (108.1); middle toe without claw 43–52 (47.2 mm.).[14]

Adult female.—Wing 425–484 (465.4); tail 390–430 (403); culmen from cere 34.5–39 (36.7); tarsus 113–118 (115.8); middle toe without claw 47–55 (50.4 mm.).[15]

Range.—Resident in forested areas from Honduras (Ceiba), Costa Rica (Talamanca, Cuabre, Río Sicsola), and Panama (Tapaliza, Banana River, Obaldía, Changuinola, Lion Hill) to Colombia (Río Salaqui and Río Juradó, Chocó), British Guiana (Bartica Grove), and French Guiana ("Cayenne"); south through Brazil (Pará, Tonantins, Rio Solimões; upper Amazonia; Camacan; Rio Cachoeira; Bahia; Minas Geraes; São Paulo; Arroyo Grande, Rio Grande do Sul) to eastern Peru (Chyavetas, Yurimaguas), Paraguay, and northeastern Argentina (upper Río Paraná). Apparently nowhere numerous.

Type locality.—Cayenne.

Falco guianensis Daudin, Traité d'Orn., ii, 1800, 78 (Guiana; based on Pétit Aigle de la Guiane Mauduyt, Encycl. Méth.).—Latham, Suppl. Index Orn., 1801, p. viii (Cayenne).—Maximilian, Beitr. Naturg. Bras., i, 1830, 90 (Ilhéos or Rio Cachoeira and Camacan, Brazil).

Morphnus guianensis Cuvier, Règne Anim., i, 1817, 318.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 17.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 738.—Gray, List Spec. Brit. Mus., ed. 2, pt. 1, 1848, 20 (Brit. Guiana); Hand-list, i, 1869, 16, No. 143.—Bonaparte, Consp. Gen. Av., i, 1850, 30; Rev. Mag. Zool., vi, 1854, 537.—Burmeister, Syst. Übers. Th. Bras., ii, 1856, 66.—Pelzeln, Journ. für Orn., viii, 1860, 337, part (crit.); xi, 1863, 121, part (crit.); Orn. Bras., Abth. 1, 1868, 4; Abth. 4, 1870, 397.—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 71 (Guiana).—Sclater and Salvin, Nom. Av. Neotr., 1873, 120, 302 (Chyavetas and Yurimaguas, e. Peru).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 222 (British Guiana; e. Peru); Hand-list, i, 1899, 259.—Gurney, Ibis, 1877, 435, in text (descr. young); 1878, 86 (upper Amazons; fresh colors of unfeathered parts); List Diurn. Birds Prey, 1884, 45; Cat. Birds Prey, 1894, 22.—Taczanowski, Orn. Pérou, i, 1884, 133.—Berlepsch and Ihering, Zeitschr. Orn., 1885, 188 (Arroyo Grande, Rio Grande do Sul, s. Brazil).—Salvin, Ibis, 1886, 75 (Bartica Grove, British Guiana).—Koenigswald, Journ. für Orn., 1896, 384 (Saõ Paulo, s. Brazil).—Ihering, Rev. Mus. Paulista, iv, 1900, 163 (Cantagallo, s. Brazil); vi, 1904, 338 (Paraguay), 450 (Rio Juruá, Amazonia).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 88, pl. 63 (Lion Hill, Panama; Guiana; Amazonia).—Bangs, Bull. Mus. Comp. Zool., xxxix, 1903, 142 (Ceiba, Honduras).—Bertoni, An. Cient. Parag., No. 3, ser. 1, 1904, 7; Anal. Soc. Cient. Argentina, lxxv, 1913, 79; Fauna Parag., 1913, 43 (upper Río Paraná).—Ihering and Ihering, Av. Brazil, 1907, 94 (Rio Grande do Sul, Amazonia, Bahia, Minas Geraes, and São Paulo).—Berlepsch,

[14] Six specimens from Costa Rica, Panama, and Brazil.

[15] Five specimens from Panama, "Guiana," and Brazil.

Nov. Zool., xv, 1908, 291 (Cayenne).—Carriker, Ann. Carnegie Mus., iv, 1908, 302 (Cuabre, Río Sicsola, Costa Rica); vi, 1910, 464 (Río Sicsola; crit.).—Dabbene, Orn. Argent., 1910, 246 (upper Río Paraná); Bol. Soc. Phys. Buenos Aires, i, 1913, 302 (Misiones, Argentina); Physis, i, 1913, 247 (Santa Ana, Misiones); i, 1914, 302 (Santa Ana, Misiones).—Brabourne and Chubb, Birds South Amer., i, 1912, 70 (Guiana; e. Peru; Paraguay; Colombia).—Reichenow, Die Vögel, i, 1913, 385.—Chubb, Birds Brit. Guiana, i, 1916, 252 (British Guiana; habits).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone); lxxxiv, 1932, 300 (Honduras; Ceiba).—Swann, Synop. Accip., ed. 2, 1922, 103 (Paraguay to Honduras); Monogr. Birds Prey, i, 1930, 479 (monogr.).—Arribalzaga, El Hornero, iii, 1924, 272 (common names, Argentina).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Contr. 349, 1925, 69.—Peters, Check-list Birds of World, i, 1931, 246; Bull. Mus. Comp. Zool., lxxi, 1931, 309 (Banana River and Changuinola, Panama).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 315 (Obaldia, Panama); lxxviii, 1935, 300 (Honduras to Paraguay in rain forest; Panama; Almirante, Canal Zone, and Darién).—Anonymous, El Hornero, vi, 1935, 189 (Honduras, Panama, s. to Argentina).—Howard, Condor, xxxvii, 1935, 207, in text.—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 449 (syn.; Argentine records; distr.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 79, 548 (Brazil; distr.; spec. from Manacapuru).—Dugand, Caldasia, No. 3, 1941, 57 (Colombia; Río Salaqui, Choco, and Río Jurado, Choco; spec.; plumage of juveniles).—Lehmann, Caldasia, ii, No. 7, 1943, 165, part (syn.; meas.; plum.; specs. from Colombian localities).

Morphnus guianensis guianensis Swann, Synopt. List. Accip., pt. 2, 1919, 61.

Harpyia guianensis Swainson, Classif. Birds, ii, 1837, 208.

Asturina (*Thrasaëtus*) *guianensis* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260 (South America).

Asturina guianensis Kaup, Isis, 1847, 201 (monogr.), 367, 379.—Kaup, *in* Jardine's Contr. Orn., 1850, 67.

Astur guianensis Schlegel, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 25 (monogr.).

Astur guyanensis Schlegel, Mus. Pays-Bas, ii, No. 36, livr. 10, 1873, 67.

Spizaetus variegatus Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 59 (Cayenne; new name for *Falco guianensis* Latham).

Morphus cristatus Lesson, Traité d'Orn., 1831, 51, pl. 11, fig. 2 (new name for *Falco guianensis* Daudin).

MORPHNUS TAENIATUS Gurney

Banded Crested Eagle

Adult female.—Forehead, crown, occiput, feathered parts of side of head and neck, nape, occipital crest, and very broad pectoral area dark neutral gray, the feathers of the occiput, nape, and anterior part of pectoral area narrowly edged with drab, and whitish basally; scapulars, interscapulars, back, rump, and upper wing coverts dusky neutral gray to blackish slate, the lesser upper wing coverts narrowly tipped with white; secondaries fuscous mottled with blackish slate and inconspicuously crossed by a broad blackish slate subterminal band and by three or four much narrower ones anterior to it, the feathers becoming whitish basally and mottled with whitish along the inner edge of the

inner web; primaries similar, but the anterior blackish bands much broader, almost if not quite as broad as the subterminal one, and two to three in number; the paler interspaces on the remiges whitish on the under side; fifth to seventh primaries (from outside) the longest, the outermost the shortest, shorter than the shortest secondaries; the inner webs of the seven outer primaries shallowly sinuated, the outer webs of second to ninth slightly sinuated; upper tail coverts like the back, but conspicuously tipped with white; rectrices slate-black tipped with white and crossed by three smoke gray bands, mottled with darker, these bands becoming successively narrower toward the base of the tail; chin and middle of upper throat dirty white with a median longitudinal narrow streak of dark neutral gray; lower throat and breast forming a broad dark neutral gray pectoral band; abdomen, sides, thighs, flanks, under tail coverts and under wing coverts white heavily barred with black, the black bars slightly broader than the white interspaces on the abdomen, sides, thighs, and flanks, equal on the under wing coverts and narrower on the under tail coverts; circumocular area, cere, and bill apparently bluish in life; iris, tarsi, and toes yellow; bill and claws blackish.

Adult male.—None seen.

Subadult female.—Similar to the adult, but with the chin, throat, and breast grayer, paler, the breast barred with blackish, not solid black.

Immature male.—Similar to subadult female, but with the upperparts washed with fuscous, the dark ventral bars narrower (half the width) and the tail with six wide dark bands.

Juvenal female.—Top and sides of head (except for bare loreal and circumocular area) ashy buffy brown; hind neck and posterior sides of neck the same blotched with blackish; scapulars, interscapulars blackish with a faint greenish sheen, tipped with hair brown, and white basally; lesser upper wing coverts similar, but more mottled with hair brown internally; median and lesser upper wing coverts whitish to pale hair brown much mottled with fuscous and hair brown; subterminally broadly banded with slate to blackish slate, white basally; some of the outer greater coverts with a second and even a third and fourth blackish band, usually narrower and less complete than the subterminal one; remiges ashy fuscous much mottled with whitish on the inner webs of the secondaries and inner primaries and crossed by six to seven fuscous black bands, the subterminal one the broadest; the outer primaries with only three or four of these bands; the inner webs of the outer primaries basally white; all remiges tipped with fuscous; lower back, rump, and upper tail coverts blackish fairly broadly tipped with ashy mouse gray, the tips paling to white on the upper tail coverts, the feathers white basally, the white showing

through on the lower back, tail crossed by five or six broad black bands, the outermost rectrix with four narrow, irregular, oblique black bands and broadly blackish subterminally, the ashy mouse gray areas much mottled with blackish on the inner web; chin and upper throat ashy avellaneous; the lower throat and breast dark, the feathers becoming hair brown faintly mottled with fuscous terminally; abdomen, sides, and thighs whitish more or less washed with pale ashy avellaneous, especially on the middle of the abdomen; a few fuscous-black spots or blotches on the upper thighs and lower abdomen; flanks and under tail coverts whitish barred with fuscous-black; under wing coverts white, those near the bend of the wing washed lightly with dirty avellaneous.

Natal down.—Not known.

Subadult male.—Wing 423–430; tail 364–380; culmen 33; tarsus 104–108; middle toe without claw 41.5–44 mm.[16]

Adult female.—Wing 457–461; tail 382–385; culmen from cere 36–37.5; tarsus 107–118; middle toe without claw 51–55 mm.[17]

Immature female.—Wing 477–491; tail 410–425; culmen from cere 36.5–38; tarsus 120–125; middle toe without claw 53–63 mm.[18]

Range.—Resident in rain-forest areas from Permé, Panama, and Río Truando, Colombia, to British Guiana (Mazaruni River) south to upper Amazonia (Barra do Rio Negro, Piquiatuba, Pará; Lago do Manqueri), and eastern Ecuador (Sarayacu, San José de Sumarco), to Bolivia (Todos Santos, Cochabamba). Apparently rare (or hard to find) throughout its range.

Type locality.—Sarayacu, Ecuador.

Morphnus guianensis (not *Falco guianensis* Daudin) Pelzeln, Journ. für Orn., viii, 1860, 337; xi, 1863, 131, part (plumages); Verh. Zool.-bot. Wien, 1862, 167, part.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1860, 132 (Truando River, Colombia).—Wied, Journ. für Orn., xi, 1863, 1 (juvenal and other plumages).—Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 2, 1876, 149 (monogr.; Río Truando, Colombia).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1900, 88, part (Río Truando, Colombia).—Chubb, Birds Brit. Guiana, i, 1916, 252 (Mazaruni River, Brit. Guiana).—Lehmann, Caldasia, ii, No. 7, 1943, 165, part (syn.; meas.; plum.; crit.; spec. ex Colombian localities).

Morphnus taeniatus Gurney, Ibis, 1879, 176, in text, pl. 3 (Sarayacu, e. Ecuador; coll. Salvin and Godman; orig. descr.; col. fig.); List Diurn. Birds Prey, 1884, 45.—Pelzeln, Journ. für Orn., xxvii, 1879, 263 (crit.).—Reichenow and Schalow, Journ. für Orn., xxviii, 1880, 195 (German translation of original descr.).—Brabourne and Chubb, Birds South Amer., i, 1912, 70.—Swann, Synop. Accip., ed. 2, 1922, 103; Monogr. Birds Prey, i, 1930, 481 (monogr.).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 235 (San José de Sumarco, Ecuador, imm.).—Peters, Check-list Birds of World, i,

[16] Two specimens from Truando, Colombia, and Piquiatuba, Pará, Brazil.

[17] Two specimens from Permé, Panama, and Piquiatuba, Pará, Brazil.

[18] Two specimens from Bolivia and Ecuador.

1931, 246.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 315 (Perinė, Panama; crit.); lxxviii, 1935, 301 (Permé, Panama).

Morphnus guianensis taeniatus Swann, Synopt. List Accip., pt. 2, 1919, 61.

Genus HARPIA Vieillot

Harpyia (not of Oschenheimer, 1810, or of Illiger, 1811) Cuvier, Règne Anim., i, 1817, 317. (Type, by monotypy, "La Grande Harpie d'Amerique . . . (probablement de *Falco harpyia* . . . Linn.).")

Harpia Vieillot, Analyse, 1816, 24. (Type, by monotypy, "*Aigle destructeur*, Soun. edit. de Buffon" = *Vultur harpyia* Linnaeus.)

Harpya (emendation) Swainson, Philos. Mag., new ser., i, No. 5, May 1827, 366.

Harpeia (emendation) Boie, Isis, 1822, 548.

Thrasaëtos "Gray" Bonaparte, Proc. Zool. Soc. London, 1837 (published June 14, 1838), 108. (Type, by monotypy, *Vultur harpya* Linnaeus.)

Thrasaëtus (emendation) Gray, Gen. Birds, i, 1845, 15.

Thrasyaëtus (emendation) Agassiz, Index Zool., 1846, 369.

Thrasaëtur (lapsus) Kaup, *in* Jardine's Contr. Orn., 1849, 109.

Thrassaetos (emendation) Allen, Bull. Amer. Mus. Nat. Hist., xxiii, 1907, 330.

Anopaia Haldeman, Proc. Acad. Nat. Sci. Philadelphia, i, 1842, 188. (New name for *Harpyia* Cuvier, preoccupied.)

Nothrophontes Gloger, Hand-und Hilfsbuch, 1842 (1841), 219. (Type, by monotypy, *Falco destructor* Daudin = *Vultur harpyia* Linnaeus.)

Nothrophrontes (emendation) Sharpe, Cat. Birds Brit. Mus., i, 1874, 223.

Nothrophantes (emendation?) Giebel, Thesaurus Orn., ii, 1875, 723.

Very large and strongly built eagles (wing about 533–623 mm.)[19] with wing very broad and much rounded, the longest primaries but little exceeding the longest proximal secondaries; tail about three-fourths as long as wing; tarsus nude for greater part, exceedingly robust, less than twice as long as middle toe and covered with irregular scutella, and with an occipital crest of long and very broad plumes.

Bill moderate in size, relatively short and deep, its depth at anterior margin of cere equal to about two-thirds the chord of culmen; culmen strongly curved from base, forming about one-third the circumference of a circle, slightly arched proximally, curved backward terminally, the maxillary unguis moderately produced, obtuse; gonys slightly convex, ascending terminally; maxillary tomium with a shallow obtuse notch or indentation a little posterior to middle portion, anterior to which the tomium is somewhat lower than behind, sometimes showing tendency to form a shallow lobe; anterior margin of cere distinctly convex; nostril obliquely vertical, oval, beveled off anteriorly to edge of cere, situated about or very slightly below middle of cere. Wing relatively short but very broad and much rounded, the secondaries greatly developed, the primaries abbreviated, the longest scarcely extending beyond tips of longest secondaries; fifth, sixth, or seventh

[19] While not the longest winged, the primaries being relatively short and the wing much rounded, the single species of *Harpia* is, nevertheless, much the most powerful as well as the heaviest of the eagles, except, possibly one or two African species.

primaries (from outside) longest, the first shortest, the third about as long as tenth, the first scarcely more than half as long; inner webs of seven outer primaries shallowly sinuated (the sinuation very slight or barely perceptible on seventh). Tail relatively long (more than three-fourths as long as wing), truncate, the rectrices very broad. Tarsus exceedingly robust, about one-fifth as long as wing, its diameter equal to one-fourth its length, or more, nearly the upper half covered in front with dense short feathers, the remainder with exceedingly irregular scales and scutella, generally small and approximately hexagonal in form, but on acrotarsium forming a short series of about 10 broad transverse scutella, and on the planta tarsi much larger, but very irregular both in size and arrangement, forming a somewhat interrupted and in places double series, which on the lower portion is twisted to the outer side; middle toe more than half as long as tarsus, the lateral toes much shorter, reaching to about base of third phalanx of middle toe, the outer toe very conspicuously weaker than the inner, the hallux very robust, about equal in length to lateral toes; upper surface of toes with prominent broad transverse scutella except on basal phalanges; claws of hallux and inner toe exceedingly large and strongly curved, but rather obtuse, about equal in length to the digits, the middle claw much smaller, the outer only about one-third as long as the inner.

Plumage and coloration.—Plumage in general full, the feathers soft and broad with gently convex tips; loral region scantily covered with short bristlelike feathers; feathers of posterior portions of head and neck greatly developed, forming an erectile encircling ruff, those of the occiput much elongated, forming an erectile crest of rather rigid broad plumes with rounded tips; feathers of thighs short and dense or compact, continued downward in an angle over upper half of acrotarsium. Adults with upperparts and chest plain blackish, the remaining underparts white, the thighs barred with black, the head and neck grayish, the tail crossed by alternate bands of black and mottled grayish; young grayish above, marbled with blackish, the head, neck, and underparts whitish.

Range.—Continental tropical America. (Monotypic.)

HARPIA HARPYJA (Linnaeus)

Harpy Eagle

Adult (sexes alike).—Forehead, crown, supraloreal and supraorbital areas, cheeks, auriculars, chin, and throat pale smoke gray to smoke gray; the occipital crest darker, dark neutral gray to blackish slate, lores and circumorbital area bare; interscapulars, scapulars, back, rump, wings, and upper tail coverts black with a slight bluish cast, the feathers of the lower back, rump, and upper tail coverts narrowly

tipped with whitish; scapulars, median and greater upper wing coverts irregularly mottled with neutral gray and narrowly tipped with pale neutral gray to whitish; secondaries and inner primaries very much mottled light neutral gray to neutral gray or pale smoke gray, in fact these feathers are better described as these shades of gray mottled

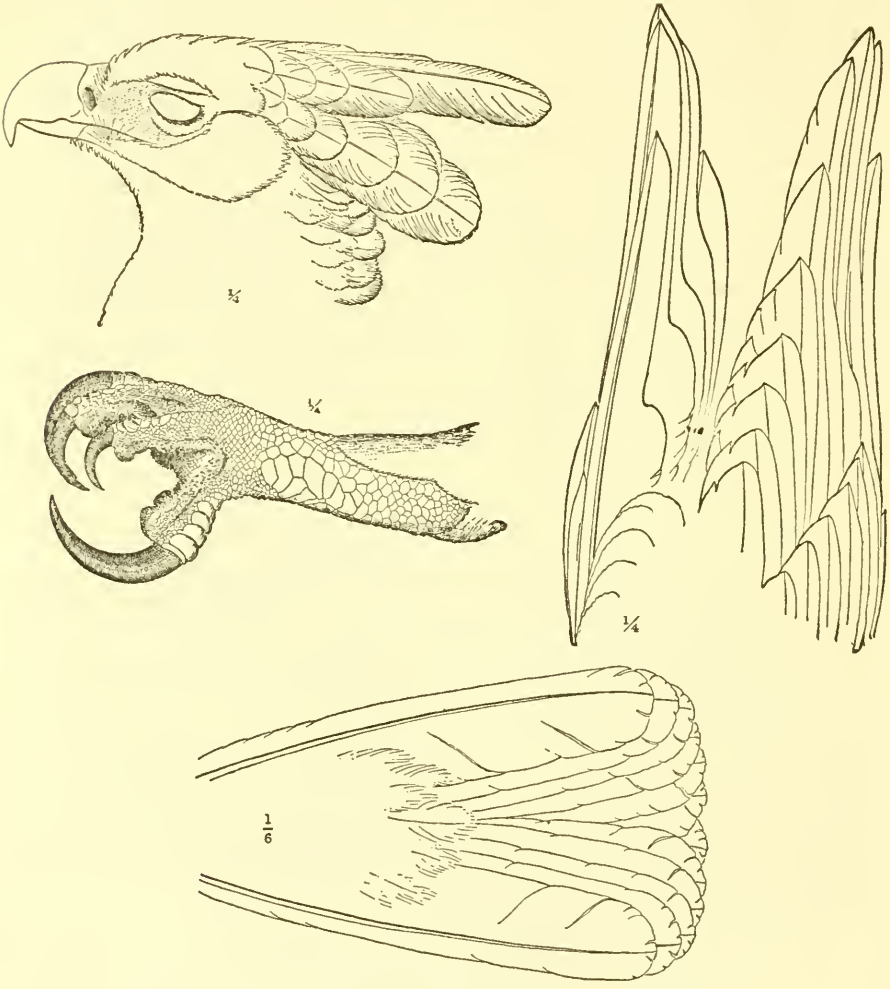

FIGURE 30.—*Harpia harpyja.*

with blackish, tipped narrowly with pale grayish to white, crossed by a broad subterminal black band and by several irregular and incomplete bands anterior to this one, the bands more definite, the mottling with blackish less pronounced, on the outer primaries where the grayish color is replaced by a dusky grayish hair brown; the underside of all the remiges much whiter where grayish above, making the black

bands very distinct; the light areas pale smoke gray with a suggestion of a silvery tinge; rectrices neutral gray, tipped with white and crossed by four broad black bands, the subterminal one slightly the broadest, and these dark bands as broad as, if not broader than, the intervening gray bands; the latter more or less mottled with blackish, especially the more basal gray bands; a broad black pectoral band across the breast fading definitely but rather abruptly into the smoke gray of the throat and with a dark bluish cast on its greater part; rest of underparts white, the sides with black longitudinal streaks, the thighs conspicuously narrowly barred with black, the under tail coverts usually immaculate, but sometimes faintly and narrowly barred blackish; under surface of tail with gray areas paler than on the upper side; under wing coverts white much and variably barred or mixed with black, the axillars black, narrowly tipped with white; bare circumocular region and lores blackish; cere and bill blackish with a bluish cast; iris burnt umber to blackish brown; tarsi and toes pale yellow to cream; toes blackish.

Immature plumage (sexes alike).—Forehead and crown pale smoke gray, the latter with blackish bases to some of the feathers; occiput, cheeks, auriculars, sides and back of neck whitish, the occipital crest feathers blackish tipped with white and more or less mottled with smoke gray; scapulars, interscapulars, back, rump, upper wing coverts, and upper tail coverts light neutral gray to neutral gray much mottled with black; remiges as in adults, but less mottled with neutral gray and with more black bands; rectrices neutral gray much mottled, especially obliquely, with black, crossed by a black subterminal band and narrowly tipped with white; the inner webs of the outer rectrices paler and slightly washed with light drab; entire underparts white, the breast feathers washed with drab and mottled or blotched with blackish on the concealed portions, the thighs narrowly and faintly barred with blackish; under wing coverts chiefly white with a few black marks.

Juvenal (sexes alike).—All feathered parts of head, nape, occiput (including crest), sides of neck, and entire underparts pure white; scapulars, interscapulars, back, rump, lesser and median upper wing coverts very pale drab gray to very pale smoke gray, the interscapulars lightest, almost white; greater upper wing coverts smoke gray mottled sparingly with blackish; remiges like those of the immature plumage but the black bars on the secondaries closer together and more numerous; upper tail coverts as in immature birds, but with the black mottling less extensive; rectrices as in immature plumage, but the oblique black marks larger and darker and the subterminal band wanting or very indistinct; the underside of the tail very distinctly

mottled and spotted with black (only a subterminal spot in the immature plumage).

Natal down.—Not known.

Adult male.—Wing 543–580 (556.5); tail 372–412 (392); culmen from cere 41.5–54 (48.3); tarsus 114–120 (115.8); middle toe without claw 73–80 (77.0 mm.).[20]

Adult female.—Wing 583–610 (578.6); tail 417–420 (418); culmen from cere 46–63 (53); tarsus 118–130 (123); middle toe without claw 83–90 (86.0 mm.).[21]

Range.—Tropical America in general (except West Indies), in wooded districts; north to southern Mexico (Almaloya, Mirador, Vera Cruz; Tehuantepec, Guichiloma, Oaxaca); south through Guatemala (Vera Paz, Secanquim, Cobán); Nicaragua (Savala); Costa Rica (Cerro de la Candelaria, El Hogar, San José, Cartago, Turrialba, etc.); Panama (Lion Hill, Almirante, Banana River); Colombia,[22] British, Dutch, and French Guianas (no records from Venezuela or Ecuador); Brazil (Rio Madeira, Amazonas, Pará, São Paulo, Cantagallo); eastern Peru (Río Ucayali); Bolivia (Moxos, Cochabamba, Santa Cruz de la Sierra); Paraguay, and northern Argentina (Orán, Salta, Misiones). Rare north of Costa Rica.

Type locality.—Mexico.

Vultur harpyja Linnaeus, Syst. Nat., ed. 10, i, 1758, 86 (Mexico; based on *Yzuanhuatli* Hernández, Mexico, p. 34; *Aquilae cristatae genus* Ray, Av., 161; ed. 12, i, 1766, 121).

Falco harpyja Gmelin, Syst. Nat., i, 1788, 251.—Latham, Index Orn., i, 1790, 9.—Shaw, Gen. Zool., vii, pt. 1, 1809, 54.—Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 61.

Gypaetos harpyja Daudin, Traité d'Orn., ii, 1800, 27.

Thrasaetus harpyia Bonaparte, Proc. Zool. Soc. London, 1837, 108 (Mexico); Consp. Gen. Av., i, 1850, 29; Rev. Mag. Zool., vi, 1854, 537.—Gray, Gen. Birds, i, 1845, 15; List Spec. Brit. Mus., ed. 2, pt. 1, 1848, 20 (Brit. Guiana); Hand-list, i, 1870, 16, No. 142.—Des Murs, *in* Castelnau, Exped. Amér. du Sud, Ois., 1855, 8 (Río Ucayali e. Peru).—Strickland, Orn. Syn., i, 1855, 26.—Hartlaub, Journ. für Orn., 1857, 41 (Río Ucayali).—Sclater and Salvin, Ibis, 1859, 215 (Vera Paz, Guatemala); Proc. Zool. Soc. London, 1864, 368 (Panama; flight); Nom. Av. Neotr., 1873, 120; Proc. Zool. Soc. London, 1878, 302 (Rio Marañón, above Nauta, e. Peru); 1879, 637 (Moxos, Cochabamba, and Santa Cruz de la Sierra, Bolivia).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 461 (Panama); U. S. Nat. Mus. Bull. 4, 1875, 39 (Almoloya, Oaxaca; fresh colors of unfeathered parts).—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 224 (Brit. Guiana); Hand-List, i, 1899, 259.—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 145 (monogr.); Nom. North Amer. Birds, 1881, No. 450; Man. North Amer. Birds, 1887, 242; ed. 2,

[20] Six specimens from Mexico, Nicaragua, Costa Rica, Panama, and Brazil.

[21] Four specimens from Costa Rica, Panama, Surinam, and Bolivia.

[22] Until recently not reported from Colombia, but now known from several Colombian localities.

1896, 242.—Boucard, Proc. Zool. Soc. London, 1878, 44 (Cerro de la Candelaria, Costa Rica).—Gurney, Ibis, 1878, 86, in text (descr. of rufescent spec. from Guiana); List Diurn. Birds Prey, 1884, 46; Cat. Birds Prey, 1894, 22.—Taczanowski, Orn. Pérou, i, 1884, 131.—von Boek, Mitth. Orn. Ver. Wien, 1884, 9 (in author's separate) (Thale, Cochabamba. Bolivia).—American Ornithologists' Union, Check-list, 1886, No. 350.—Salvin, Ibis, 1886, 75 (Brit. Guiana).—Berlepsch, Journ. für Orn., 1887, 122 (Paraguay); Nov. Zool., xv, 1908, 291 (Cayenne).—Zeledón, Anal. Mus. Nac Costa Rica, i, 1887, 126 (Costa Rica).—Bendire, Life Hist. North Amer. Birds, i, 1892, 270.—Loat, Ibis, 1898, 563 (Brit. Guiana).—Ihering, Rev. Mus. Paulista, iii, 1899, 357 (San José do Rio Pardo, São Paulo, s. Brazil); iv, 1900, 162 (Cantagallo, São Paulo).—Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1901, 89 (Almaloya, Mirador, Veracruz; Mexico; Guichiloma and Tehuantepec, Oaxaca; Vera Paz, Guatemala; San José, Cartago, Turrialba, and Carro de la Candelaria, Costa Rica; Lion Hill, Panama, Colombia to Guiana and Paraguay).—Ihering and Ihering, Av. Brazil, 1907, 94 (São Paulo to Amazonia, Brazil).—Carriker, Ann. Carnegie Mus., vi, 1910, 464 (El Hogar, Costa Rica).—Hellmayr, Nov. Zool., xvii, 1910, 412 (opposite Borba, Rio Madeira, Brazil); xxviii, 1921, 177 (crit.).—Brabourne and Chubb, Birds South Amer., i, 1912, 70 (s. to Paraguay and s. Brazil).—Bertoni, An. Soc. Cient. Argentina, lxxv, 1913, 79 (San Pedro; Misiones, Argentina); Bol. Soc. Physis Buenos Aires, i, 1913, 302 (Oran, Salta, Misiones, etc., Argentina); Fauna Paraguaya, 1914, 43.—Dabbene, Physis, i, 1914, 303 (Oran, Salta; in forests that cover central mountain range and in San Pedro, Misiones).—Chubb, Birds Brit. Guiana, i, 1916, 254 (habits).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone); lxxx, 1928, 154 (Pará, Brazil).—Swann, Synopt. List Accip., ii, 1919, 62.—Bond, Auk, xliv, 1927, 562 (nesting habits; Amazonia).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 137 (descr.; habits; Panama).—Howard, Condor, xxxvii, 1935, 207, in text (bone characters).

Thrasaetus harpya Boucard, Liste Ois. récol. Guat., 1878, 20.—Rovirosa, La Naturaleza, vii, 1887, 376 (Tabasco—Cerro del Tortuguero, Frontera, near San Juan Bautista; Chiapas, between Ríos Puscatan and Tulija; spec.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico: Veracruz and Oaxaca).—Koenigswald, Journ. für Orn., 1896, 384 (São Paulo, s. Brazil).—Holmberg, Segundo Censo Argent., 1899, 506 (Chaco); El Hornero, vii, 1939, 157 (Mexico to Chaco).

Thrasyaetus harpyia Coues, Check List North Amer. Birds, ed. 2, 1882, No. 531; Key North Amer. Birds, ed. 2, 1884, 553.—Ihering, Rev. Mus. Paulista, vi, 1904, 338 (Paraguay).—Dabbene, Orn. Argent , 1910, 246 (n. Chaco; Oran; Salta; Sierra de Misiones).—Arribalzaga, El Hornero, iii, 1924, 273 (common names, Argentina).

Thrasaëtos harpyia American Ornithologists' Union, Check-list, ed. 2, 1895, 135.

Thrasaëtus harpyja Hellmayr, Nov. Zool., xxviii, 1921, 177 (rev. of d'Orbigny collection).

Morphnus harpyia Tschudi, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 96, 265 (Peru).—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 738; Journ. für Orn., 1874, 229 (Brazil).—Pelzeln, Journ. für Orn., 1863, 12 (crit.); Orn. Bras., Abth. 1, 1868, 4; Abth. 4, 1870, 397.

Morphnus (*Thrasaetus*) *harpyia* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 72.

Asturina (*Thrasaëtus*) *harpyia* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260 (South America).

Asturina harpyia KAUP, Isis, 1847, 208 (monogr.), 367, 373, 379; *in* Jardine's Contr. Orn., 1850, 68.

Astur harpyia SCHLEGEL, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 23, 25; No. 36, livr. 10, 1873, 67.

Harpia harpyia REICHENOW, Die Vögel, i, 1913, 386.—ENGELMANN, Die Raubvögel Europas, 1928, 247 (nat. hist., econ., falconry).—DUGAND, Caldasia, ii, No. 3, 1941, 57 (Colombia; Cabuyaro, Río Meta, Llanos Orientalis; Río Salaquí; Dept. del Tolima, Alto Magdalena; Contratacion, Santander; spec.).

Harpia harpyja SWANN, Synop. Accip., ed. 2, 1922, 104 (Mexico to Paraguay, Bolivia, and Brazil); Monogr. Birds Prey, i, 1930, 482 (monogr.).—PETERS, Check-list Birds of World, i, 1931, 246; Bull. Mus. Comp. Zool., lxxi, 1931, 309 (near Almirante, Panama; also Panama River, Panama); lxxviii, 1935, 301 (Panama, rain-forest areas).—LÖNNBERG, Fauna och Flora, i, 1931, 5 (fig.; habits).—GRISCOM, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 158 (distr. in Guatemala).—ANONYMOUS, El Hornero, vi, 1935, 189 (distr.).—STEULLET and DEAUTIER, Obra Cincuentenario Mus. La Plata, i, 1936, 450 (Argentine records and distr.; syn.).—PINTO, Rev. Mus. Paulista, xxii, 1938, 79 (Brazil; distr.).—GRISCOM and GREENWAY, Bull. Mus. Comp. Zool., lxxxviii, 1941, 114 (Lower Amazonia; Pará, Castanha, Peixe-Boi, Rio Guama, Rio Capin, Rio Tapajóz).—BRODKORB, Misc. Publ. Mus. Zool. Univ. Michigan No. 56, 1943, 29 (Mexico: Tabasco and Chiapas).

Vultur coronatus JACQUIN, Beiträg., 1784, 15.

Gypaëtus coronatus DAUDIN, Traité d'Orn., ii, 1800, 28.

Falco jacquini GMELIN, Syst. Nat., i, pt. 1, 1788, 251 (montibus Novae Grenadae, i. e., Colombia; based on Jacquin, p. 15, n. xi).

Falco cristatus GMELIN, Syst. Nat., i, pt. 1, 1788, 260 (based on *Crested Falcon* Dillon it. per Hisp., p. 80, t. 3; *Carraca Falcon* Latham, Synopsis Birds, i, pt. 1, p. 81, No. 64).

Falco cristatus DAUDIN, Traité d'Orn., ii, 1800, 43.

Harpyia cristata DESCOURTILZ, Orn. Bras., 1854–56, 9, pl. 2.

Falco destructor DAUDIN, Traité d'Orn., ii, 1800, 60 (Guiana; based on *Grand Aigle de la Guiane Mauduyt*, Enc. Méth.).—VIEILLOT, Nouv. Dict. Hist. Nat., xiv, 1817, 234.—TEMMINCK, Planches Col., i, 1824, pl. 14 and text.—LESSON, Hist. Mam. et Ois., vii, 1828–37, pl. 1.

Harpyia destructor CUVIER, Règne Anim., i, 1817, 317.—D'ORBIGNY and LAFRESNAYE, Synop. Avium, 1837, 4 (Bolivia).—D'ORBIGNY, Voy. Amér. Mérid., iv, pt. 3, 1839, 81 (Bolivia; habits).—HALLOWELL, Proc. Acad. Nat. Sci. Philadelphia, 1846, 84–88 (anatomy and osteology).—BURMEISTER, Syst. Übers. Th. Bras., iii, 1856, 59.—LAWRENCE, Ann. Lyc. Nat. Hist. New York, ix, 1869, 145 (San José, Costa Rica).—OSWALD, Amer. Nat., xii, 1878, 146–157 (alleged habits).—HELLMAYR, Nov. Zool., xxviii, 1921, 177 (syn.).

Harpya destructor HOLMBERG, Nat. Arg., 1, 1878, 95 (Chacó; Oran, Salta.).

Nothrophrontes destructor GLOGER, Handb. Naturg., 1842, 219.

Morphnus destructor LICHTENSTEIN, Nom. Av. Mus. Berolinensis, 1854, 2.

Falco imperialis SHAW, Gen. Zool., vii, 1809, 52, pl. 15.

Harpyia imperialis STEPHENS, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 17.

Falco regalis SHAW, Gen. Zool., vii, pt. 1, 1809, 56 (Brazil; based on *"L'Ouira ouassou* Sonnoni Buff [on]").

Falco caracca SHAW, Gen. Zool., vii, 1809, 64.

Falco calquin SHAW, Gen. Zool., vii, 1809, 55 (Chile; based on *Calquin* Molina).—MOLINA, Saggio Stor. Nat. Chili, 1810, 220 (Chile).

Harpyia maxima VIEILLOT, Nouv. Dict. Hist. Nat., xiv, 1817, 233, pl. M 7, fig. 1

(cites *Falco destructor* and *cristatus* Latham, *Vultur harpyia* Linnaeus, and *Falco harpyia, cristatus,* and *jacquini* Gmelin).

Harpyia ferox Lesson, Traité d'Orn., 1831, 50, pl. 10 and 11, fig. 1 (new name for *Falco destructor* Daudin).

?*Aquila dicronyx* Rafinesque, Atlant. Journ. and Friend of Knowledge, i, No. 1, 1832, 63 (Buenos Aires).

Genus SPIZASTUR Gray

Spizastur "Lesson" Gray, List Gen. Birds, ed. 2, 1841, 3 (*ex* Lesson, Rev. Zool., ii, 1839, 132=nomen nudum). (Type, by monotypy, *Falco atricapillus* "Cuv." Temminck=*Buteo melanoleucus* Vieillot.)

Spiziastur (emendation) Kaup, Isis, 1848, 772.

Tolmolestes Heine, *in* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 270 (new name for *Spizastur* Lesson, on grounds of purism).

Large eaglelike hawks (wing about 363–417 mm.) resembling *Spizaëtus,* but differing from that genus in having much longer primaries, the inner webs of outer five abruptly emarginated (instead of outer six shallowly sinuated), the first (outermost) primary longer than the tenth (instead of much shorter); relatively shorter, deeper, and more compressed bill; very different anterior outline to cere, which is farther removed from anterior edge of nostril; relatively shorter tail (less than three-fifths as long as wing; instead of three-fourths as long); densely bristled loral region; unfeathered mandibular rami; relatively longer than inner toe and hallux, each with its claw as long as or longer than the digit, and in immaculate white underparts.

Bill relatively short, deep, and compressed, the culmen (chord) slightly but decidedly longer than claw of middle toe or about half as long as middle toe without claw, its depth at base of culmen slightly less than distance from most anterior point of cere to tip of maxilla and one and a half times its width at same point; culmen obtusely ridged, strongly and gradually decurved from base; unguis moderately developed, preceded by a distinct tomial concavity, this by a slight, but distinct convexity; gonys faintly convex, ascending terminally; anterior margin of cere regularly convex. Nostril obliquely vertical, nearly hemispherical, the posterior edge straight, the anterior edge strongly convex, separated by a considerable interval from anterior edge of cere. Wing rather long and pointed (for this group), the longest primary exceeding distal secondary by about one-third the length of wing; fourth and fifth primaries longest, the first (outermost) longer than tenth; inner webs of five outer primaries abruptly emarginated. Tail between one-half and three-fifths as long as wing, truncate, the rectrices moderate in width (the width of middle pair equal to about one-fifth their length (from point of insertion)). Tarsus about one-fifth as long as wing; densely feathered all around except on extreme lower portion; middle toe about three-fourths as long as tarsus, its claw decidedly less than half as long as the digit; outer toe very

slightly longer than inner toe, both extending to much beyond penultimate articulation of middle toe, the claw of outer toe about half as long as the digit, that of inner toe slightly longer than the digit; hallux as long as inner toe, its claw longer than the digit.

Plumage and coloration.—Loral region rather densely clothed with small, fine bristles; mandibular rami bare; feathers of pileum becoming gradually larger posteriorly, those of occiput considerably, but not conspicuously, elongated, subcuneate, forming a slight erectile crest; feathers of upperparts rather broad, rounded terminally, distinctly outlined, those of underparts softer and more blended; plumage of thighs distinctly, but not conspicuously elongated, plumelike, those of tarsi much shorter, close, and blended. Head, neck, and underparts white, the lores and spots on occiput black; upperparts plain black or blackish brown, the tail crossed by four or five broad bands of blackish and grayish brown.

Range.—Continental tropical America, from southern North America to southern Brazil, Paraguay, and Argentina. (Monotypic.)

SPIZASTUR MELANOLEUCUS (Vieillot)

Black-and-white Eagle-Hawk

Adult (sexes alike in coloration).—Loreal and narrow circumocular areas black (bristlelike feathers); forehead, anterior and lateral parts of crown, sides of occiput and nape, and entire underparts immaculate white; posterior portion of crown and median part of occiput black, the black confined to the apical portion of the feathers and the basal white areas often showing through, giving the region a somewhat streaked appearance; scapulars, interscapulars, upper back, back, rump, and all the upper wing coverts, except those of the lesser ones at the bend of the wing, black with a slight oily greenish sheen, the bases of the feathers bone brown, the latter color showing through among the black to a varying degree; remiges bone brown to fuscous very narrowly tipped with pale hair brown to drab and even white, subterminally broadly blackish, the inner webs broadly white on the inner edge for their basal half or more, the remiges crossed incompletely by four or five blackish bands anterior to the subterminal one; under surface of remiges white where fuscous above; upper tail coverts dark olive-brown subterminally darkening to fuscous; rectrices grayish hair brown, the median pair sometimes slightly less grayish than the others, narrowly tipped with white, subterminally broadly banded with black and crossed by three incomplete and much narrower blackish bands anterior to this; iris straw yellow; cere and basal part of the mandible reddish orange; bill black; tarsi and toes Indian yellow; claws black.

Immature (sexes alike).[23]—Similar to the adult, but with more of the bone-brown color visible on the upperparts; with the lesser and median upper wing coverts narrowly tipped with whitish, and the rectrices with five blackish bands (including the subterminal one, which is not very much broader than the more anterior ones).

Natal down.—Unknown.

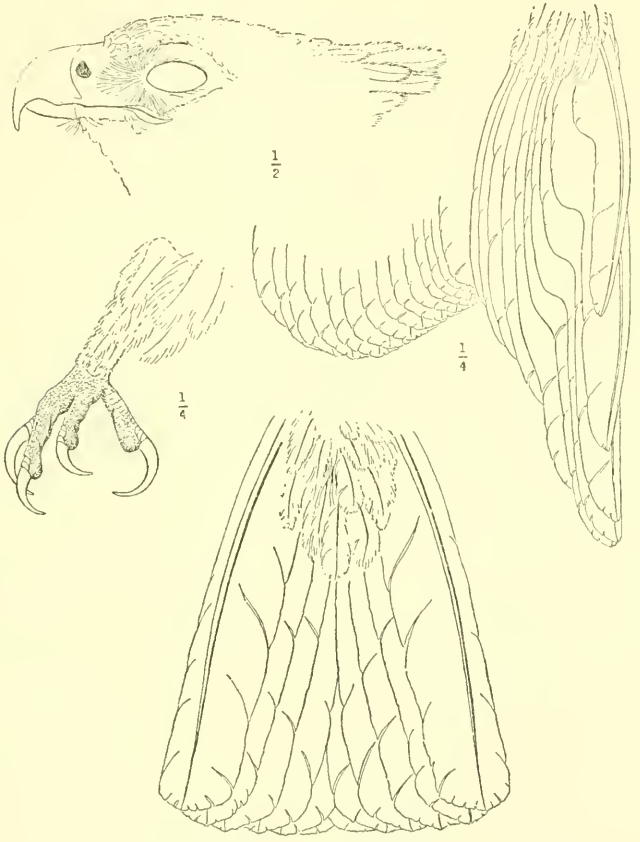

FIGURE 31.—*Spizastur melanoleucus.*

Adult male.—Wing 340–386.2 (364.6); tail 230–245 (238.5); culmen from cere 24.5–28 (25.9); tarsus 72–84 (77); middle toe without claw 49–52.5 (50.5 mm.).[24]

Adult female.—Wing 393.7–423 (411.7); tail 230–253 (242); culmen from cere 26–30 (28); tarsus 88–99 (93.4); middle toe without claw 56–58.5 (57.1 mm.).[25]

[23] Nothing is known as to the details of plumage sequence in this hawk. Under this heading are put all apparently nonadult birds.

[24] Five specimens from Mexico, Nicaragua, Costa Rica, Colombia, and Brazil.

[25] Five specimens from Mexico, Costa Rica, Panama, and British Guiana.

Range.—Resident in heavy tropical forest and apparently scarce throughout its range, from southern Mexico (Jalapa; Veracruz; Oaxaca-Santa Efigenia; Yucatán—Tizimín; Tekantó, Sitelpech; and Chiapas—Huehuetán; Tonalá); Guatemala (Huamuchal; Sabanna Grande); Nicaragua (Matagalpa, San Emilia); Costa Rica (La Palma de San José; Tucurrique; Esparta; Pacuare; El Hogar; Buenos Aires de Térraba); and Panama (Banana River; Lion Hill; Veraguas); south through Colombia (Vista Nieve, Santa Marta); British Guiana; French Guiana ("Cayenne"); through Brazil (Taquera, Rio Grande do Sul; São Paulo; Chapada, Mato Grosso; Cantagallo; apparently not recorded from Amazonia proper); to southeastern Peru (Tungasuca); and northeastern Argentina (Misiones; Río Paraná). Not found in any of the West Indies.

Type locality.—Guiana.

Buteo melanoleucus Vieillot, Nouv. Dict. Hist. Nat., iv, 1816, 482 (Guiana); Gal. Ois., 1825, pl. 14.—Nitsche, El Hornero, iii, 1926, 374 (in South American folklore).

Spizaetus melanoleucus Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 57 (Paraguay).—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 15 (South America).—Bonaparte, Consp. Gen. Av., i, 1850, 28.—Sclater and Salvin, Ibis, 1859, 215 (Guatemala); Proc. Zool. Soc. London, 1864, 369 (Panama); Nom. Av. Neotr., 1873, 120.—Schlegel, Mus. Pays-Bas, ii, No. 4, livr. 7, 1862, 14 (monogr.); livr. 10, 1873, 60.—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 132 (La Palma de San José, Costa Rica); U. S. Nat. Mus. Bull. 4, 1875, 38 (Santa Efigenia, Oaxaca).—Frantzius, Journ. für Orn., 1869, 368 (Costa Rica).—Gray, Hand-list, i, 1870, 12, No. 105.—Cabanis, Journ. für Orn., 1874, 229 (Brazil).—Boucard, Proc. Zool. Soc. London, 1883, 456 (Yucatán).—Berlepsch and Ihering, Zeitschr. Orn., 1885, 170 (Taquera, Rio Grande do Sul, s. Brazil).—Koenigswald, Journ. für Orn., 1896, 384 (São Paulo, s. Brazil).

Spizaetus (*Spizastur*) *melanoleucus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 71 (Guiana).

Spizastur melanoleucus Bonaparte, Rev. Mag. Zool., vi, 1854, 537.—Ferrari-Pérez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Jalapa, Veracruz).—Ihering, Rev. Mus. Paulista, iii, 1899, 358 (São Paulo, s. Brazil); vi, 1904, 338 (Paraguay).—Ihering and Ihering, Av. Brazil, 1907, 94 (Río Grande do Sul, São Paulo, Mato Grosso, and Rio Grande, Brazil).—Dabbene, Bol. Soc. Physis Buenos Aires, i, 1913, 247 (Mbocay, Misiones), 303 (Río Paraná and Misiones, Argentina); Orn. Argent., 1910, 247, 285 (upper Río Paraná); El Hornero, iii, 1926, 394 (genl.; Argentina).—Bertoni, An. Soc. Cient. Argent., lxxv, 1913, 80 (Mbocay, Misiones); Fauna Paraguaya, 1914, 43.—Chubb, Birds Brit. Guiana, i, 1916, 258.—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 110 (crit.; distr.; Mato Grosso, Brazil).—Peters, Check-list Birds of World, i, 1931, 247; Bull. Mus. Comp. Zool., lxxi, 1931, 309 (Banana River, Panama).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (Panama; 4 scattered records).—Anonymous, El Hornero, vi, 1935, 189 (distr.).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 451 (Argentine records and distr.; syn.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 80 (Brazil; distr.).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 114 (Lower Amazonia; Rio Tapajóz; Obidos; spec.).—

Lehmann, Caldasia, ii, No. 7, 1943, 190 (spec.; Villavicencio, Colombia; meas.; also from Villa Gómez, Río Menzipa, Cundinamarca; near Moscopan, Cauca).

Spiziastur melanoleucus Sharpe, Cat. Birds Brit. Mus., i, 1874, 258 (South America), 458 (Panama).—Ridgway, U. S. Geol. and Geog. Surv. Terr., ser. 2, Bull. 2, 1876, 166 (monogr.).—Gurney, Ibis, 1877, 422; List Diurn. Birds Prey, 1884, 51; Cat. Birds Prey, 1894, 23.—Zeledón, Anal. Mus. Nac. Costa Rica, 1887, 126 (Costa Rica).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 147 (Chapada, Mato Grosso, Brazil).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Mexico; listed).—Sharpe, Hand-list, i, 1899, 263.—Ihering, Rev. Mus. Paulista, iv, 1900, 163 (Cantagallo, s. Brazil).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 94 (Jalapa, Veracruz; Santa Efigenia and Uvero, Oaxaca; Tizimin, Tekanto, and Sitilpech, Yucatán; Huamuchal and Sabana Grande, Guatemala; Matagalpa, Nicaragua; Tucurrique, La Palma de San José, Esparte, San José, and Pacuare, Costa Rica; Veraguas and Lion Hill, Panama, Colombia to Guiana and e. Brazil).—Berlepsch, Nov. Zool., xv, 1908, 291 (Cayenne).—Carriker, Ann. Carnegie Mus., vi, 1910, 465 (El Hogar and Buenos Aires de Terraba, Costa Rica; habits).—Brabourne and Chubb, Birds South Amer., i, 1912, 70.—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone).—Menegaux, Rev. Franc. Orn., 1918, 289 (Villa Lutetia, Misiones, Argentina).—Swann, Synopt. List Accip., pt. 2, 1919, 70; Synop. Accip., ed. 2, 1922, 116 (Yucatán to Brazil).—Chapman, U. S. Nat. Mus. Bull. 117, 1921, 60 (Tungasuca, se. Peru).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 159 (distr. in Guatemala).

Falco atricapillus (not of Wilson, 1812) Temminck, Planches Col., i, 1823, pl. 79, and text.

Morphnus atricapillus Vigors, Zool. Journ., i, 1824, 325.

Morphnus atricapillus Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 20 (Cayenne).

Astur atricapillus (not of Bonaparte, 1830) Lesson, Man. d'Orn., i, 1828, 93.

Spizastur atricapillus Gray, List Gen. Birds, 1841, 3.

Spizaëtus atricapillus Gray, Gen. Birds, i, 1845, 14.—Kaup, Isis, 1847, 168 (monograph) 366, 378.—Bonaparte, Consp. Gen. Av., i, 1850, 28.—Pelzelen, Orn. Bras., Abth. 1, 1868, 4; Abth. 4, 1870, 397.

Spizaëtus atriceps Kaup, Mus. Senckenb., iii, 1845, 254; *in* Jardine's Contr. Orn., 1850, 62.

Spizaëtus apirati Bertoni, Aves Nuevas Paraguay, 1901, 154.

Spizaëtus mauduyti (not *Falco mauduyti* Daudin, 1800) Lynch-Arribalzaga, Apunt. Crit. Av. Parag. Bertoni, 1902, 373.

Genus SPIZAËTUS Vieillot

Spizaëtus Vieillot, Analyse, 1816, 24. (Type, as designated by Gray, 1840, "*Falco mauduyti* Daudin" = *F. ornatus* Daudin.)

Spizaëtos (emendation) Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, 1828 (1826), 24.

Spizaetus (emendation) Kaup, Isis, 1848, 772.

Plumipeda Fleming, Philos.-Zool., ii, 1822, 234. (Type, by monotypy, *Falco superbus* Shaw=*F. ornatus* Daudin.)

Pternura Kaup, Mus. Senckenb., iii, Heft 3, 1845, 259. (Type, by monotypy, *Falco tyrannus* Maximilian.)

Pterura (emendation) Gray, List Spec. Brit. Mus., pt. 1, Accip.; ed. 2, 1848, 14, 15.

Phaeoaëtus Ridgway, Smiths. Misc. Coll., lxxii, No. 4, 1920, 2. (Type, by original designation, *Falco limnaetus* Horsfield (new name for *Limnaetus* Horsfield, 1830, not *Limnaetus* Bowdich, 1825.)

Limnaëtops Stuart Baker, Fauna Brit. Ind., ed. 2, Birds, vii, 1930, 408. (Type, by original designation, *Limnaëtops c. cirrhatus* (Gmelin)=*Falco cirrhatus* Gmelin.)

Large eaglelike hawks (wing about 351–482 mm.), with tarsi densely feathered all around very nearly to base of toes; six outer primaries incurved or bowed distally, their inner webs obliquely sinuated; wing tip short, the longest primary extending but relatively little beyond tip of the very broad inner (proximal) secondaries and exceeding outermost (distal) secondary by less than one-fifth the length of wing; tail more than three-fourths as long as wing, its tip distinctly rounded; median occipital feathers much elongated (the longest plumes as long as or longer than tarsus, about five times longer than wide, of nearly uniform width throughout and with rounded tips), and with underparts black (*S. tyrannus*) or white broadly barred with black (*S. ornatus*) in adults.

Bill moderately stout, the culmen (chord) one-third or more as long as tarsus, its depth at base of culmen about or more than one and a half times as much as its width at same point; culmen rounded (transversely), strongly or gradually and regularly decurved from base, the maxillary unguis relatively long and strong, the maxillary tomium concave anteriorly, convex or "lobed" in middle portion; gonys distinctly convex basally, nearly straight and ascending terminally; anterior outline of cere convex in front of nostril, receding both above and below, the lower end about on line (vertically) with posterior edge of nostril. Nostril obliquely vertical, broadly elliptical, close to anterior edge of cere. Wing short but very broad, the longest primary exceeding distal secondary by not much more than one-fifth the length of wing and exceeding longest of the very broad proximal secondaries by less than the length of culmen or about three times its length; fifth primary (from outside) longest, the sixth but little shorter, the first (outermost) very much shorter than tenth and also shorter than distal secondary; outer six primaries with inner webs obliquely sinuated, the three outermost incurved distally. Tail three-fourths as long as wing or slightly more, slightly but distinctly rounded, the rectrices very to only moderately broad (width of middle pair equal to about one-fourth to one-sixth the length, from point of insertion). Tarsus slightly to decidedly less than twice as long as middle toe without claw, densely feathered all around, except extreme lower portion; outer toe longer than inner, the latter (without claw) extending to beyond penultimate articulation of middle toe; hallux as long as inner toe, its claw decidedly longer than

the digit and twice as long as that of outer toe or more; all the claws moderately to strongly curved and acute.

Plumage and coloration.—Loral region unfeathered, but with sparse, rather short, fine bristles; feathers of forehead rather short, broadly cuneate, with rigid bristlelike shafts, those of crown and occiput similar but becoming gradually larger posteriorly; two median feathers of upper nape or lower occiput much elongated (in *ornatus*) (longer than tarsus when fully developed), about five times as long as wide, tapering slightly in width toward their rounded tips; the feathers of the nape and hind neck abruptly much larger and more elongated, forming an erectile broad ruff; feathers of hind neck generally broad, soft, and blended; plumage of body, etc., rather full, the feathers very broad, broadly rounded terminally, distinctly outlined; feathers of thighs rather short, not plumelike or only slightly so, those of tarsus smaller and extended very nearly or actually to base of toes. Tail crossed by several alternate bands of black and brownish gray; legs barred or transversely spotted with black and white; coloration variable; adults with pileum (including nuchal plumes) black, auricular region, hindneck, and sides of neck and chest cinnamon or fawn color, the throat, median foreneck, and rest of underparts white, broadly barred on breast and abdomen with black in *ornatus;* coloration mainly black or dusky in *tyrannus.* Young with head and neck mostly white, without cinnamon or fawn color on neck and sides of chest, and with underparts much more sparsely barred (mostly along sides).

Range.—Continental tropical America, from southern Mexico to Paraguay and Argentina; Japan and China to southern Asia, the Philippine Islands, the East Indies, and New Guinea.

(Six species; three in the American Tropics; two in our region; the third probably not a valid form.)

Type.—*Spizaëtus ornatus* (Daudin).

KEY TO THE FORMS OF SPIZAËTUS OF NORTH AND MIDDLE AMERICA

a. Entire underparts predominantly white with markings of other colors.
b. Top of head solid black.....**S. ornatus vicarius**, ad. (p. 444)
bb. Top of head pale tawny-buff or white with dark markings.
c. Sides of breast and throat pure white..**S. ornatus vicarius**, juv. (p. 445)
cc. Sides of breast and throat streaked and washed with brown.
S. ornatus vicarius, imm. (p. 445)
aa. Entire underparts not predominantly white, largely black.
b. Chin, throat, and breast solid black.....**S. tyrannus**, ad. (p. 448)
bb. Chin, throat, and breast not solid black.
c. Chin and middle of throat and of upper breast pure white.
S. tyrannus, juv. (p. 449)
cc. Chin and middle of throat streaked with black; breast brown streaked with black and white.....**S. tyrannus**, imm. (p. 448)

SPIZAËTUS ORNATUS VICARIUS Friedmann

CENTRAL AMERICAN CRESTED EAGLE-HAWK

Adult (sexes alike in coloration).—Forehead, crown, occiput, and occipital crest uniform black; nape and sides of hind neck and anterior interscapulars snuff brown to mikado brown; posterior interscapulars, scapulars, back, rump, upper tail coverts, median and greater upper wing coverts sepia to dark snuff brown, subterminally broadly banded

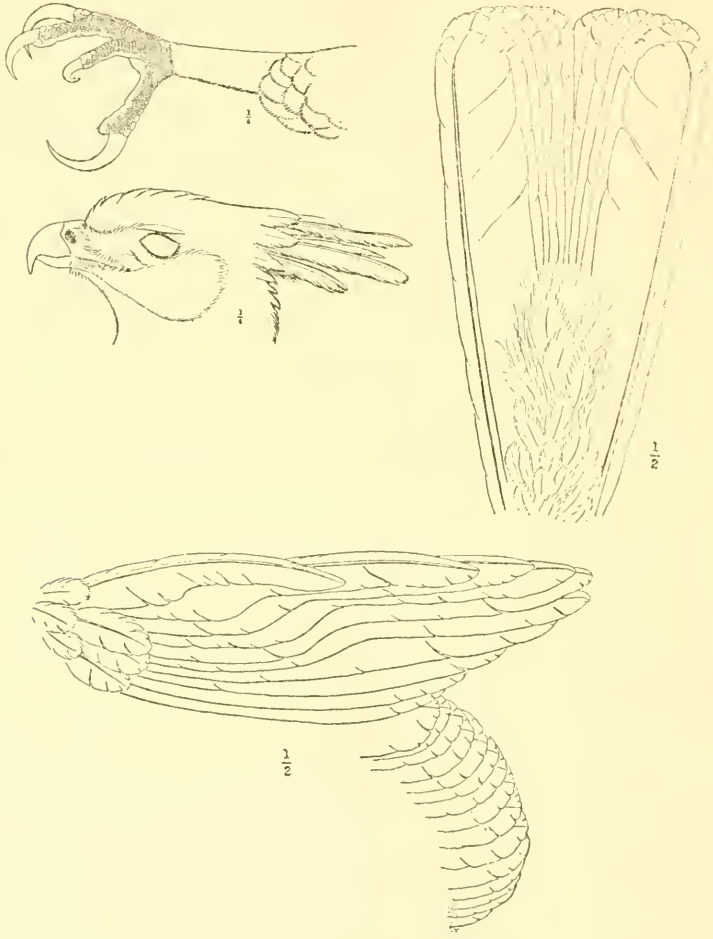

FIGURE 32.—*Spizaëtus ornatus.*

with black; lesser upper wing coverts chiefly black, the brown basal area relatively much restricted and narrowly tipped with white (as are occasional upper tail coverts); remiges sepia paling to whitish on the inner margin of the inner webs basally, and crossed by five or six fuscous-black bands, the subterminal one the broadest, and all

narrower than the brown interspaces, the underside of the remiges white where brown above; five or six outermost primaries emarginated on their inner web, the fifth from the outside the longest, the outermost primary shorter than the rest of the primaries or the secondaries; rectrices ashy hair brown narrowly tipped with dirty white, whitish at the extreme base, and crossed by four broad black bands, the bands as wide as the brown interspaces, or nearly so; under side of rectrices white where brown above; lores and circumocular area sparsely clothed with grayish short feathers, with fine, elongated, hairlike black shafts, auriculars, cheeks, and sides of neck snuff brown to mikado brown, usually slightly more rufescent on the cheeks than elsewhere, this color forming a broad gorget extending over the sides of the throat and breast; a black malar stripe from the angle of the bill (under the eye) demarcates the brown gorget from the pure white chin and middle of throat and breast, the black line ending as a series of large spots on the upper breast; abdomen, sides, flanks, thighs, under tail coverts and under wing coverts white broadly barred with black, the bars on the abdomen, sides, and flanks about 10 mm. wide, as wide as the white interspaces; the bars on the thighs narrow (3-5 mm. wide), but the white interspaces there also equally narrow; the bars on the under tail coverts rather few, narrow, and widely spaced, often paler than the deep black abdominal ones; the under wing coverts more spotted than barred, although the axillars are regularly barred; iris orange-yellow; lores, circumocular area, and cere grayish, greenish yellow; bill black plumbeous basally; tarsi and toes yellow; claws black.

Immature (sexes alike).—Similar to the adult, but the top of head and hind neck pale tawny buff blotched or longitudinally spotted with fuscous-black, the back and wings with the black areas more restricted and therefore showing more of the brownish color; cheeks, auriculars, sides of throat and of breast whitish streaked, washed, and blotched with snuff brown to mikado brown; rectrices crossed by six or seven fuscous-black bars; abdomen rather less abundantly marked with black; remiges more abundantly and more narrowly barred with black; iris yellowish white.

Juvenal (sexes alike).—Entire feathered part of head and nape dirty white washed and blotched with pale tawny-cinnamon and with narrow fuscous-black shaft streaks in many of the feathers; occipital plumes bright wood brown with blackish shaft streaks and broad blackish or fuscous-black margins, sometimes whitening terminally; scapulars, interscapulars, back, rump, median and greater upper wing coverts sepia to dark snuff brown; lesser upper wing coverts fuscous-black to black narrowly tipped with white; remiges and rectrices as in immature birds; upper tail coverts sepia barred with darker, and

sometimes tipped with white; entire underparts including sides of face and neck white, the sides, flanks, and thighs barred with black, the bars finer on the thighs, becoming mere spots on the lower part of the tarsus.

Natal down.—Apparently undescribed.

Adult male.—Wing 337.8–349.3 (339.8); tail 244–268 (255.6); culmen from cere 25.5–29 (27.1); tarsus 87–92 (89); middle toe without claw 47–53 (49.7 mm.).[26]

Adult female (sexes alike).—Wing 353.3–388 (377.8); tail 266–290 (281.6); culmen from cere 27–31.5 (30); tarsus 89.5–100 (94.1); middle toe without claw 51–55 (53 mm.).[27]

Range.—Resident in heavy rain forest from low levels up to 5,000 feet or more, from southern Mexico (Veracruz—Actopan, Pasa Nueva, Mirador, Barra de Santa Ana, etc.; Oaxaca—Santa Efigenia, Teotalcingo; Yucatán—Pacaitun; Chiapas—La Tuxpura); Guatemala (Chocón River, Cobán, Cahabón, Choctum, Costa Grande, Patulul); British Honduras (Manatol Lagoon, Belize); Honduras (Puerto Caballas, Potrerillos, San Pedro); Nicaragua (Los Sábalos, Lake Nicaragua, San Emilia); El Salvador (Barra de Santiago, Puerto del Triunfo); Costa Rica (Volcán de Miravalles, San José, Juan Viña, Guanacaste, Boruca, La Palma de Nicoya, Orosi, San Isidro, Jiménez, etc.); Panama (Lion Hill, Gatún, Mount Pirri, Cordillera de Tolé, Colovevora), south in western South America to Colombia (Río Atrato, Puerto Valdivia, La Morelia, Bonda) and Ecuador (Galea); possibly to Peru. Apparently nowhere numerous.

Type locality.—Manatol (=Manatee) Lagoon, British Honduras.

Morphnus ornatus Cuvier, Règne Anim., i, 1817, 319, part.—Lesson, Traité d'Orn., 1831, 52.

Spizaetus ornatus Vieillot, Nouv. Dict. Hist. Nat., xxxii, 1819, 60; Gal. Ois., 1825, pl. 21, part.—Kaup, Isis, 1847, 166 (monogr.), 366, 378, part.—Bonaparte, Consp. Gen. Av., 1850, 28, part.—Sclater, Proc. Zool. Soc. London, 1857, 20 (Jalapa, Veracruz); 1859, 389 (Teotalcingo, Oaxaca).—Moore, Proc. Zool. Soc. London, 1859, 52 (Puerto Caballos, Honduras; habits).—Sclater and Salvin, Ibis, 1859, 215 (Vera Paz, Guatemala); Proc. Zool. Soc. London, 1864, 369 (Panama); 1873, 302 (Chyavetas, e. Peru); Nom. Av. Neotr., 1873, 120, part; Proc. Zool. Soc. London, 1879, 540 (Remédios, Colombia).—Taylor, Ibis, 1860, 223 (Potrerillos and San Pedro, Honduras).—Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).—Schlegel, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 2, part (monogr.); No. 36, livr. 10, 1873, part (crit.).—Salvin, Proc. Zool. Soc. London, 1867, 158 (Cordillera de Tole, Veraguas); 1870, 215 (Calovebora, Veraguas).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 132 (San José, La Palma, and Juan Viñas, Costa Rica).—Frantzius, Journ. für Orn., 1869,

[26] Seven specimens from Mexico, Guatemala, Honduras, El Salvador, Panama, and Ecuador.

[27] Eight specimens from Mexico, Honduras, Nicaragua, El Salvador, Costa Rica, and Panama.

367 (Costa Rica).—Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region of Veracruz).—Gray, Hand-list, i, 1870, 12, No. 102, part.—Nutting, Proc. U. S. Nat. Mus., v, 1882, 404 (La Palma de Nicoya, Costa Rica).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—Gurney, List Diurn. Birds Prey, 1884, 47, part; Cat. Birds Prey, 1894, 22, part.—Taczanowski, Orn. Pérou, i, 1884, 135.—Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 167 (Actopam and Barra de Santa Ana, Veracruz).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (San José, Costa Rica).—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 50 (Boruca, Costa Rica).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Mexico; listed).—Underwood, Ibis, 1896, 446 (Volcán de Miravalles, Costa Rica; food).—Sharpe, Hand-list, i, 1899, 263, part.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 92, part (Jalapa, Mirador, Uvero, and Teotalcingo, Veracruz; Cacoprieto, Santa Efigenia, and Chimalapa, Oaxaca; Belize, Brit. Honduras; Coban, Cajabon, Choctum, and Contra Costa, Guatemala; Puerto Caballo, Honduras; Los Sabalos, San Emilio, and Lake Nicaragua, Nicaragua; Miravalles, La Palma de San José, Orosi, San Isidro, San Vicente, Jiménez, and San José, Costa Rica; Cordillera de Tole, Calovebora, and Lion Hill, Panama).—Hellmayr, Abh. Bayer. Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 569, part (crit.).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 83 (Patulul, Guatemala).—Carriker, Ann. Carnegie Mus., vi, 1910, 465 (Guanacaste and El Pozo de Terraba, Costa Rica; habits).—Brabourne and Chubb, Birds South Amer., i, 1912, 70, part.—Reichenow, Die Vögel, i, 1913, 387, part.—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 248 (Río Atrato, Puerto Valdivia, and La Morelia, Colombia); lv, 1926, 236 (distr. in Ecuador).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama: Canal Zone); lxxxiv, 1932, 300 (Honduras: Omoa).—Swann, Synopt. List Accip., pt. 2, 1919, 70, part; Synop. Accip., ed. 2, 1922, 116, part (s. Mexico to Peru; includes *tyrannus*.).—Lonnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (near Gualea, Ecuador, 5,000 feet).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 157 (Bonda, Santa Marta, Colombia).—Stresemann, Journ. für Orn., lxxii, 1924, 429, part (crit.; tax.).—Schüz, Journ. für Orn., lxxv, 1927, 99, in text, part (powder downs).—Peters, Check-list Birds of World, i, 1931, 248, part.—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 159 (distr. in Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (scattered records throughout Panama).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Howard, Condor, xxxvii, 1935, 207, in text.—van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, No. 27, 1935, 15, in text, 16 (Uaxactún, Guatemala; spec.; food; colors).—Anonymous, El Hornero, vi, 1935, 190, part.—del Campo, Anal. Inst. Biol., xiii, No. 2, 1942, 701 (Chiapas; spec.).—Sutton and Pettingill, Auk, lix, 1942, 9 (Gómez Farias region, sw. Tamaulipas; habits).

Spiziaetus ornatus Kaup, *in* Jardine's Contr. Orn., 1850, 62.

Spizaëtus tyrannus (not *Falco tyrannus* Maximilian) Taylor, Proc. Zool. Soc. London, 1858, 356 (according to Sclater, Ibis, 1860, 223, footnote).

Spizaetus mauduyti Sharpe, Cat. Birds Brit. Mus., i, 1874, 262, part (Panama; Cobán, Guatemala).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Mexico; distr.).

Spizaëtus manduyti Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 38 (Santa Efigenia, Oaxaca; fresh colors of unfeathered parts).

Spizaetus ornatus vicarius Friedmann, Journ. Washington Acad. Sci., xxv, 1935, 451 (orig. descr.; near Manatol Lagoon, Brit. Honduras; type in Carnegie Mus.)—van Rossem, Birds El Salvador, 1938, 127 (distr. in El Salvador; colors of soft parts; habits).—Sassi, Temminckia, iii, 1938, 301 (Costa Rica, Porto Jiminez and Castilla; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 199, 203 (Pacaitun, Yucatán; spec.).

SPIZAËTUS TYRANNUS (Wied)

Tyrant Eagle-Hawk

Adult (sexes alike in coloration).—All feathered parts of head deep black, the feathers of the crown and occiput with the underlying portion pure white, much of which usually shows through; a broad, short occipital crest of slightly lengthened, rather cuneate feathers; scapulars, interscapulars, back, upper wing coverts, chin, throat, breast, sides, and anterior part of abdomen pure black; remiges externally (in folded wing) fuscous-black to black; crossed by five or six fuscous bars about equally spaced, the bars slightly narrower than the black interspaces and becoming mottled or edged with white on the inner margin of the inner webs, these bars grayish white on the under surface of the remiges; fifth to sixth primaries longest, first shorter than eighth, the outer five with their inner webs sinuated; rump and upper tail coverts, especially the latter, black, each feather crossed by two or three narrow white bars which are mottled with slightly brownish gray; and, in fresh plumage, narrowly tipped with white; rectrices black becoming whitish basally, and crossed by four broad deep ashy gray bands mottled with pale fuscous and whitish; narrowly tipped with whitish; all the tail bands white on the under surface; lower abdomen and flanks black more or less spotted with narrow semitransverse white flecks; thighs black narrowly barred with white, the black interspaces broader than the white bars; under tail coverts like the flanks, but with the white bars still more broadly spaced; under wing coverts black barred with white; the black and white more nearly alike in width; lores plumbeous; iris, tarsi, and toes orange-yellow; bill and claws black, the lower part of the mandible somewhat plumbeous.

Immature (sexes alike).—Different from the adult. Top of head from forehead to nape white, more or less washed with pale tawny-buff and heavily streaked or blotched with fuscous to fuscous-black; scapulars, interscapulars, upper back, and upper wing coverts dark sepia to fuscous; remiges fuscous to dark fuscous crossed by six or seven sepia bands becoming whitish at the inner edge of the inner web; the sepia bands whitish on the under side of the feathers; lower back, rump, and upper tail coverts fuscous to fuscous-black barred with white; rectrices similar to those of the adult, but the brownish gray bands more mottled with whitish, and with five, instead of four, fuscous-black bands; chin and throat whitish heavily streaked with

fuscous-black; breast, especially laterally, deep buffy brown with broad blackish shaft streaks, the feathers, especially those toward the middle of the breast, edged and tipped with white; lower breast, entire abdomen, sides, flanks, thighs, and under tail coverts dark

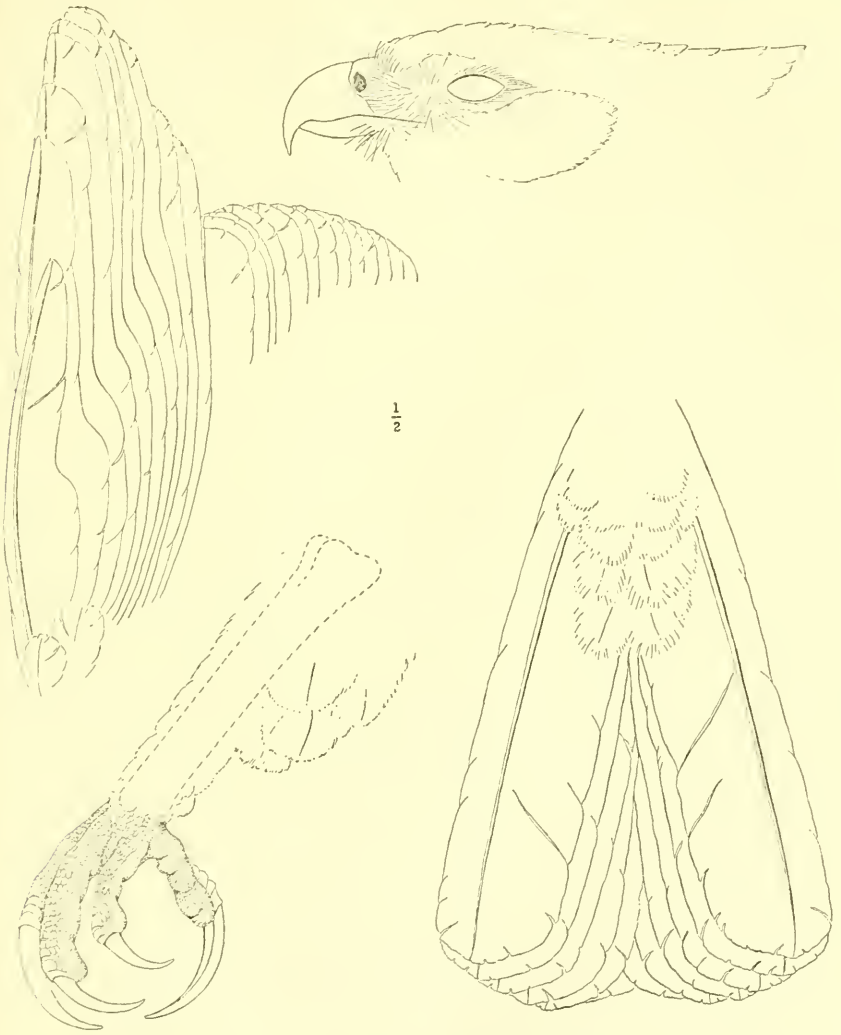

FIGURE 33.—*Spizaëtus* ("*Pternura*") *tyrannus*.

fuscous to fuscous-black barred with white, the bars on the lower breast and upper abdomen broken into separate spots on the two webs of the feathers; under wing coverts with much more white than in adults.

Juvenal (sexes alike).—Similar to the immature plumage, but with

the forehead, anterior crown, and broad superciliaries practically unstreaked, creamy white, the hind crown and nape as in the immature, but with the dark spots edged with tawny; the chin and upper throat pure unmarked creamy white; the breast much less washed with buffy brown, this color practically confined to the edges of the dark shaft streaks of a few lateral feathers; the anterior abdomen creamy white washed with buffy brown and streaked (along the shafts) with fuscous to fuscous-black, these shaft streaks widening and contracting to form the semblance of incomplete bars.

Natal down.—Unknown.

Adult male.—Wing 368.3–381 (374.6); tail 291.1–325 (309.4); culmen from cere 27.5–29 (28.1); tarsus 81–88 (84); middle toe without claw 44–47 (45.6 mm.).[28]

Adult female.—Wing 406.4–458.2 (430.9); tail 342.9–398.7 (379.4); culmen from cere 29–31.5 (29.7); tarsus 90–95 (92); middle toe without claw 46–53 (49.5 mm.).[29]

Range.—Resident in heavy forest of the Tropical Zone from southern Mexico (Veracruz—Medellín, Mirador, Portrero, Jalapa, Orizaba, and Chiapas—Chicharras) south through Guatemala (Choctum, Savana Grande, Ducñas), Honduras (Potrerillos, San Pedro, Sabirana, Middlesex), Nicaragua (Mombacho), El Salvador (Volcán de San Miguel), Costa Rica (Rancho Redondo, Juan Viñas, Boruca, San José, Tucurrique), Panama (Calobre, Veraguas, Lion Hill, Fruitdale, Obaldia: Changuinola; Río Indio; Gatún), Colombia (Bogotá, Bondo, Puerto Valdivia, Cúcuta), Venezuela (Mérida), Trinidad, the Guianas, and Brazil (Pará, Bahia, Rio Belmonte, Rio Grande do Sul, Rio de Janeiro, Rio Tapajóz, Borba; São Paulo; etc.) to Paraguay (Sapucay) and Peru (Río Huallaga). Not recorded from Ecuador; not found in any of the West Indies or Tobago, although known from Trinidad.

Type locality.—Quartel dos Arcos, Rio Belmonte, Bahia, Brazil.

(?) *Falco sonnini* Shaw, Gen. Zool., vii, pt. 1, 1809, 67 (Guiana; based on Petit Aigle de la Guiane Sonnini, etc.).[30]

(?) *Falco delicatus* Shaw, Gen. Zool., vii (i), 1809, 68 (based on Petit Aigle de la Guiane Sonnini, etc.).

(?) *Morphnus ? sonnini* Stephens, Shaw's Gen. Zool., xiii, pt. 2, 1826, 18.

Falco tyrannus Wied, Reis. Bras., i, 1820, 360 (Rio Belmonte, Brazil; type now in coll. Amer. Mus. Nat. Hist.); Beitr. Naturg. Bras., i, 1830, 84 (Rio Belmonte).—Temminck, Planches Col., i, 1823, pl. 73 and text (=juv.).

Aquila tyrannus Lesson, Man. d'Orn., i, 1828, 84.

Morphnus tyrannus Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 20 (Brazil).—Cuvier, Règne Anim., i, 1829, 331.—Lesson, Traité d'Orn., 1831, 53.

[28] Five specimens from Mexico, Panama, and Surinam.

[29] Six specimens from Mexico, Honduras, Costa Rica, and Brazil.

[30] Sharpe (Cat. Birds Brit. Mus., i, 1874, 222) gives this reference under *Morphnus guianensis:* but since Shaw's *Falco sonnini* is only 24 inches long and has the legs "feathered to the toes," obviously it cannot be that bird.

Morphnus (*Piernura*) *tyrannus* KAUP, Mus. Senckenb., iii, Heft 3, 1845, 259.

Spizaetus tyrannus GRAY, Gen. Birds, i, 1845, 14; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 15 (Bogotá, Colombia); Hand-list, i, 1870, 12, No. 103.—KAUP, Isis, 1847, 366; *in* Jardine's Contr. Orn., 1850, 63.—BONAPARTE, Consp. Gen. Av., i, 1850, 29.—BURMEISTER, Syst. Übers. Th. Bras., ii, 1856, 62.—SCLATER, Proc. Zool. Soc. London, 1858, 357 (Potrerillos, Honduras); 1860, 253 (Veracruz, Mexico).—SCLATER and SALVIN, Ibis, 1859, 215 (Guatemala); Proc. Zool. Soc. London, 1864, 368 (Panama); 1867, 590 (Rio Capim, ne. Brazil); 1870, 878 (coast Honduras); 1873, 302 (Río Huallaga, e. Peru; habits); Nom. Av. Neotr., 1873, 120.—LAWRENCE, Ann. Lyc. Nat. Hist. New York, vii, 1861, 316 (Panama); ix, 1868, 132 (Costa Rica).—PELZELN, Orn. Bras., Abth. 1, 1868, 4; Abth. 4, 1870, 397.—FRANTZIUS, Journ. für Orn., 1869, 368 (Costa Rica).—SUMICHRAST, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region of Veracruz).—SALVIN, Proc. Zool. Soc. London, 1870, 215 (Calobre, Veraguas, Panama).—LAYARD, Ibis, 1873, 394 (Pará, Brazil).—RIDGWAY, Proc. Boston Soc. Nat. Hist., 1873, 71 (Brazil).—SCHLEGEL, Mus. Pays-Bas., ii, No. 36, livr. 10, 1873, 59 (crit.).—SHARPE, Cat. Birds Brit. Mus., i, 1874, 264 (Choctum, Guatemala; Demerara, Brit. Guiana; Rio Capim, ne. Brazil); Hand-list, i, 1899, 263.—GURNEY, Ibis, 1877, 423, 424 (remarks on plumages); List Diurn. Birds Prey, 1884, 47 (crit.); Cat. Birds Prey, 1894, 12.—CUBAS, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—TACZANOWSKI, Orn. Perou, i, 1884, 131.—BERLEPSCH and IHERING, Zeitschr. Orn., 1885, 169 (Taquara, Rio Grande do Sul, s. Brazil).—ALLEN, Bull. Amer. Mus. Nat. Hist., ii, 1889, 267 (Rio Belmonte, Brazil).—BERISTAIN and LAURENCIO, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Veracruz).—CHAPMAN, Bull. Amer. Mus. Nat. Hist., vi. 1894, 71 (Trinidad).—KOENIGSWALD, Journ. für Orn., xliv, 1896, 384 (São Paulo, s. Brazil).—IHERING, Rev. Mus. Paulista, iii, 1899, 360 (São Paulo, s. Brazil); iv, 1900, 163 (Cantagallo and Novo Fribourgo, São Paulo).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1901, 93 (Mirador and Potrero, Veracruz; Choctum, Savana Grande, and Dueñas, Guatemala; Potrerillos and San Pedro, Honduras; Volcán de San Miguel, El Salvador; Mombacho, Nicaragua; San José and Tucurrique, Costa Rica; Cordillera del Chucu, Calobre, and Lion Hill, Panama; Colombia to Guiana and Brazil).—GOELDI, Ibis, 1903, 497 (Rio Capím, ne. Brazil).—HELLMAYR, Abh. K. B. Akad. Wiss., Kl. II, xxii, No. 3, 1905, 569; Nov. Zool., xvii, 1910, 412 (Borba, Rio Madeira, Brazil).—IHERING and IHERING, Av. Brazil, 1907, 95 (Rio Grande do Sul; Pará; Rio de Janeiro, Bahia; São Paulo).—BERLEPSCH, Nov. Zool., xv, 1908, 291 (Cayenne).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 466 (Juan Vinas and Boruca, Costa Rica; habits).—BRABOURNE and CHUBB, Birds South Amer., i, 1912, 71.—BERTONI, Fauna Paraguaya, 1913, 43 (Sapucay, Paraguay).—REICHENOW, Die Vögel, i, 1913, 386.—CHUBB, Birds Brit. Guiana, i, 1916, 260.—DABBENE, Physis, ii, 1916, 428 (Santa Ana and Bonpland, Misiones, Argentina).—CHAPMAN, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 248 (Puerto Valdivia, Colombia).—BANGS and PENARD, Bull. Mus. Comp. Zool., lxii, 1918, 37 (Paramaribo, Surinam).—STONE, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Canal Zone; Panama); lxxxiv, 1932, 300 (Honduras; Potrerillos, and San Pedro).—SWANN, Synopt. List Accip., pt. 2, 1919, 71.—TODD and CARRIKER, Ann. Carnegie Mus., xiv, 1922, 157 (Bonda, Santa Marta, Colombia; crit.).—STRESEMANN, Journ. für Orn., lxxii, 1924, 429 (crit.; tax.).—GLIESCH, Egatea, xv, 1930, 283 (Rio Grande do Sul; Brazil).—PETERS, Check-list Birds of World, i, 1931, 248; Bull.

Mus. Comp. Zool., lxxi, 1931, 309 (Changuinola and Fruitdale, Panama).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 159 (distr. in Guatemala); Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (Panama: Veraguas, Canal Zone, Darién).—Belcher and Smooker, Ibis, 1934, 593 (crit.; in text).—Roberts, Trop. Agr., xi, No. 4, 1934, 5 (Trinidad).—Anonymous, El Honrero, vi, 1935, 190 (s. Mexico to Argentina).—Steullet and Deautier, Obra Cincuentenario Mus. de La Plata, i, 1936, 453 (Argentine records and distr.; syn.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 81 (Brazil; distr.).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 115 (Lower Amazonia; Villa Braza, Rio Tapajóz; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 199, 203 (Pacaitun, Yucatán; spec.).

Pternura tyrannus Bonaparte, Rev. Mag. Zool., vi, 1854, 536.—Heine and Reichenow, Nom. Mus. Heine. Orn., 1890, 270 (Jalapa, Veracruz; Brazil).

Harpyia braccata Spix, Av. Bras., i, 1824, pl. 3 (Saõ Paulo, s. Brazil).

Spizaëtus braccatus Des Murs, Rev. Zool., x, 1847, 323; Icon. Orn., livr. 12, 1848, pl. 67 and table of contents.—Strickland, Orn. Syn., i, 1855, 68.—Léotaud, Ois. Trinidad, 1866, 12.

Morphnus braccatus Descourtilz, Orn. Bras., 1854–1856, pl. 3, upper fig.

Spizaëtus spixii Des Murs, Rev. Zool., x, 1847, 325.

Spizaëtus ornatus (not of Daudin) Swann, Synop. Accip., ed. 2, 1922, 116, part.

Genus AQUILA Brisson

Aquila Brisson, Orn., i, 1760, 28, 419. (Type, by tautonymy, *Aquila* Brisson=*Falco chrysaetos* Linnaeus.)

Aquilla (emendation) Endler and Scholz, Naturfreund [Breslau], i, 1809, 50.

Aëtos Nitzsch, Pterylog. Av., Pars Prior, 1833, 21. (Type, "Aquilas et Buteones auctorum continentes.")

Aëtus (emendation?) Riemann, Zool.-techn. Leitfaden [Magdeburg], 1839, 29.

Aetus Morris, *in* N. Wood's Naturalist, ii, No. 9, June 1837, 123. (Types, "*Aetus pygargus*" or "Erne" and "*Aëtus aquila*" or "Golden Eagle" of England.)

Chrysaëtus Sweeting, *in* N. Wood's Naturalist, ii, No. 12, Sept. 1837, 303. (Type, *C. aquilinus* Sweeting, based on "Golden Eagle," or *Aquila aurea* of Willughby=*Falco chrysaëtos* Linnaeus.)

Nisactus (typog. error) Hodgson, Journ. Asiat. Soc. Bengal, v, 1836, 228. (Type, by original designation, *Nisaëtus nipalensis* Hodgson.)

Nisaëtus (emendation) Hodgson, Journ. Asiat. Soc. Bengal, v, 1836, pl. 7.

Nisaetos (emendation) Elliott (W.), Madras Journ., x, 1839, 234.

Pteroaëtus Kaup, Classif. Säugeth. und Vögel, 1844, 120. (Type, by monotypy, *Aquila verreauxi* Lesson.)

Pteraëtos (emendation) Blasius, Bericht Versamml. Deutsch. Orn. Ges., xiii, 1860, 53.

Pteraëtus (emendation) Kaup, Arch. für Naturg., 1850, i, 37.

Clanga Tyzenhaus, *in* Adamowicz, Rev. Mag. Zool., sér. 2, ix, for Dec. 1857 (1858), 604. (Type, by tautonymy, *Falco maculatus* Gmelin=*Aquila clanga* Pallas).

Morphnaëtos Severtzov, Stray Feathers, iii, No. 5, Nov., 1875, 422. (Types, *Aquila imperialis, adelberti, orientalis, glitschi, rapax, fulvescens, clanga,* and *naevia.*)

Euaquila Acloque, Faune de France, i, 1900, 99. (Type, as designated by Richmond, 1917, *Falco chrysaëtos* Linnaeus.)

Micraetus Roberts (not Bertoni, 1901) Ann. Transv. Mus., viii, 1922, 208. (Type, by original designation, *Aquila wahlbergi* Sundevall.)

Afraetus Roberts, Ann. Transv. Mus., x, 1924, 80. (Substitute name for *Micraetus* Roberts, preoccupied.)

Psammoaetus Roberts, Ann. Transv. Mus., x, 1924, 79. (Type, by original designation, *Aquila nipalensis* Hodgson.)

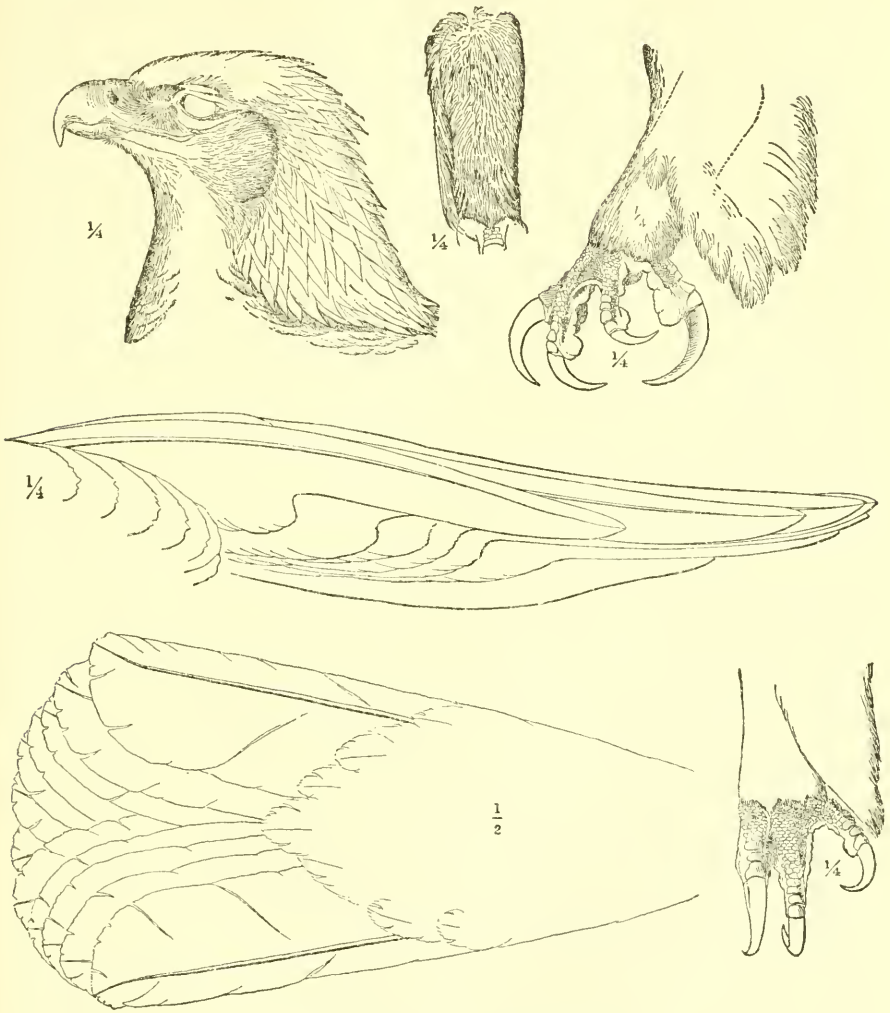

Figure 34.—*Aquila chrysaëtos.*

Large and powerful Accipitridae [31] (wing about 584–699 mm.), with tarsi densely feathered, all around, to base of toes, wing long and pointed, the longest primaries exceeding distal secondaries by more than one-third the length of wing, and with feathers of nape and hindneck (but not those of foreneck) lanceolate.

[31] The description of generic characters is based on *A. chrysaëtos* alone.

Bill moderate in size, its length (in direct line) from base of cere less than length of middle toe without claw, its depth at anterior edge of culmen equal to nearly three-fourths the chord of culmen, the latter much less than length (chord) of inner claw; culmen strongly and regularly curved from base, somewhat inclined backward at tip of the well-developed maxillary unguis; gonys less than half as long as culmen, slightly but distinctly convex, slightly ascending terminally; maxillary tomium slightly convex or faintly lobed in middle portion; anterior margin of cere faintly convex in front of nostril, strongly receding below; nostril narrowly oval, vertical, not in contact with anterior edge of cere, situated somewhat above middle of distance between tomium and top of cere, the integument of the latter hard or firm. Wing long and pointed, the longest primary exceeding distal secondary by more than one-third (about three-eighths) the length of wing; third to fifth (usually fourth and fifth) primaries longest, the third usually slightly shorter than fourth, the latter longer than sixth, the second shorter than sixth, the first shorter than seventh but longer than eighth; five outer primaries with inner webs very deeply and abruptly emarginated, the sixth (sometimes seventh also) sinuated, the outer webs of second to sixth or seventh (inclusive) sinuated. Tail about more than half (about four-sevenths) as long as wing, slightly, but distinctly rounded, the rectrices (12) moderately broad and firm. Tarsus between one-sixth and one-seventh as long as wing, densely feathered all around for entire length; middle toe about two-thirds as long as tarsus, the lateral toes much shorter, the outer slightly longer than the inner, reaching to about third articulation of middle toe; hallux slightly shorter than inner toe; claws relatively large, strongly curved, and acute, conspicuously graduated in size, that of hallux (largest) decidedly to much longer than its digit, that of inner toe about half as long, that of outer toe much less than half as long; upper surface of toes with large transverse scutella on terminal and part of subterminal phalanges, elsewhere covered with small roundish scales; web between basal phalanges of outer and middle toes well developed.

Plumage and coloration.—Plumage in general full and compact, the remiges and rectrices firm and rigid, the longer primaries subacuminate; feathers of occiput, nape, and hindneck lanceolate, acuminate, somewhat elongated, those of throat and foreneck broad and blended; feathers of thighs well developed, rather loose webbed, the longest reaching to or beyond base of toes, forming conspicuous "pantalettes." Adults mostly plain dark brown, the lanceolate feathers of hindneck and feathers of tarsi of a much paler, more tawny, hue, the primaries and rectrices blackish, the latter clouded or irregularly banded with grayish. Young similar, but with basal half or more of tail white,

feathers of breast, etc., white beneath surface, and feathers of tarsi paler (sometimes whitish). Nestling entirely white.

Nidification.—Nest usually on cliffs, sometimes on trees, very bulky, composed of sticks, lined with softer material. Eggs (2–3) oval or round ovate, whitish, more or less speckled, spotted or clouded with brown and purplish gray (rarely immaculate).

Range.—Northern Hemisphere, breeding in boreal and mountainous regions. (Several species; only one in North America, none in tropical America.)

Type.—*Aquila chrysaetos* (Linnaeus).

AQUILA CHRYSAËTOS CANADENSIS (Linnaeus)

American Golden Eagle

Adult (sexes alike).—General plumage dark brownish, dark bister to clove brown to deep fuscous, generally darkest on the lower surface, under wing coverts, interscapulars, scapulars, primaries, back, and rump; lesser and median upper wing coverts, upper and under tail coverts, tarsi (feathered to the toes) and tibiae usually paler, sepia to Saccardo's umber; the lanceolate feathers of the hind crown, occiput, and nape pale fulvous at tip, subterminally much washed with russet to hazel, with black shafts, and basally broadly dark fuscous; secondaries, especially the inner ones, olive-brown to sepia to Saccardo's umber, basally whitish, more or less mottled with olive-brownish; fourth or fifth primary the longest, third and fourth intermediate between fifth and sixth, second intermediate between sixth and seventh, first intermediate between eighth and ninth; tail dark fuscous to fuscous-blackish, paling basally to olive-brown or sepia and with two to four irregular, obsolete zigzag narrow bands of ashy pale umber, these bands usually most ashy on the lateral rectrices and most brownish on the median ones; some of the feathers of the upper surface of the body white basally, the white bases sometimes showing on the upper back; iris clear light hazel to dark brown; cere and gape pale grayish yellow to wax yellow; bill blackish to bluish slate-black color, toes grayish yellow to deep chrome yellow; claw black.

Immature (sexes alike).—Similar to the adult, but with the feathers of the underparts, as well as those of the upperparts, basally white, which color shows through occasionally; the feathers of the breast more or less edged with tawny; the tail with much white basally; the remiges also with whitish mixed with brown basally, this chiefly confined to the secondaries.

There seem to be at least two successive immature plumages, the later one (that is, subadult) with less white on the tail, wings, and bases of the body feathers, than the earlier one. The immature

plumages are really intermediate stages in pattern as well as in chronology, between the juvenal and the adult plumages.

Juvenal (sexes alike).—Generally much darker, more blackish, than adult, from nearly black to fuscous-black to dark clove brown, often with a dull purplish gloss above; the underparts usually a little more brownish, less blackish than the upperparts; the purplish gloss, when present, confined to the breast and lower throat, the feathers of the upper surface of the back and head white basally for about a third of their length, those of the underparts with still more extensive white bases; tail white or whitish washed with ashy gray on the lateral feathers, subterminally crossed by a broad terminal band of dark olive-brown to fuscous (in fresh plumage narrowly tipped with white); the broad white basal part more or less mottled or spotted with dusky brownish just anterior to the brown band; inner primaries and all the secondaries with considerable white basally; tarsi dull whitish.

Natal down.—On hatching, completely and densely covered, except on toes and back of tarsi, with dirty white to yellowish white down with a scanty overlying mixture of longer, gray tipped filoplumes; later replaced by longer, thicker, and woollier, pure white down.

Adult male.—Wing 555–610 (580.5); tail 320–360 (337.4); culmen from cere 37–41 (39.5); tarsus 101–122 (111.6) (one specimen 130!); middle toe without claw 57–66 (60.5 mm.).[32]

Adult female.—Wing 620–666 (633.2); tail 350–390 (366.2); culmen from cere 41–47 (44); tarsus 103–123 (114.9); middle toe without claw 62–73 (67.5 mm.).[33]

Range.—Resident in mountainous areas from northern Alaska (Solomon, Fort Yukon, Point Barrow (scarce), Nome, Blind Slough, Wainwright, Demarcation Point, Nushagak, Juneau, St. Michael; Unga Island, Aleutian Islands); Mackenzie (Fort Good Hope, Mac-Tavish Arm, Franklin Bay, Horton River); Athabaska; northern Saskatchewan (Stone River); Keewatin (Hell Gate Gorge); Ungava (Fort Chimo); northern Ontario (Cape Henrietta Maria); Labrador (Lake Michikamau); Anticosti Island; Nova Scotia; and Repulse Bay in the Eastern Arctic; south through British Columbia (Ducks, Bear Creek, Nine-mile Mountain); Washington; Oregon (Swan Lake, Fort Klamath, Tillamook); California (Mount St. Helena, Nicasio, Santa Cruz, Salinas, Santa Barbara, Escondido, San Diego, etc.); to northern Baja California (San Quintîn, San Fernando, La Grulla), Sonora, Sinaloa, Durango, Guanajuato, Nuevo León (Monterrey); Durango (Ciudad); and Chihuahua (San Luis Springs), on the west;

[32] Twelve specimens from California, Arizona, Texas, Kansas, Virginia, New Jersey, Ungava, and Alaska.

[33] Seventeen specimens from Sonora, California, New Mexico, Texas, Oklahoma, Virginia, Montana, Alberta, and Alaska.

through New England (formerly [Maine (Sandy River); New Hampshire (North Conway); New York (Adirondacks)], not found now except locally); formerly New Jersey (Stag Lake) and southeastern Pennsylvania (Lancaster County); western Maryland; and central and western Virginia (Blacksburg; Corrington; Upperville), West Virginia, to western North Carolina (Weaverville); eastern Tennessee (Mount LeConte; Chilhowee Mountain) in the east, and to Texas (Kerrville; Rock Springs; Chisos Mountains, etc.).

Although the species is known to occur in winter at the northern limit of its breeding range, it appears that the majority of the northernmost breeding individuals wander southward during the winter.

Casual in Florida (De Funiak Springs, Tallahassee, Fort Drum); Alabama (Florala; Preston; Florence; Prattville); Louisiana (near Pioneer, Jackson; Washington Parish; Bayou Maringouin; Bogalusa; Beauregard Parish).

Type locality.—Canada-Hudson Bay, ex Edwards.[34]

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[34] Although but a single race of the golden eagle occurs in North America, it may be mentioned that several other subspecies, only slightly differentiated from it, are to be found in parts of the Old World. Of these, the following four may be mentioned here, as they are the only ones at all likely ever to wander to the regions under discussion in this work:

1. ***Aquila chrysaëtos chrysaëtos*** **(Linnaeus)**

Falco Chrysaëtos LINNAEUS, Syst. Nat., ed. 10, i, 1758, 88 (Europe, restricted type locality, Sweden, *ex* Faun. Suec).

Paler and slightly smaller than *canadensis*, with the tarsal plumes still paler and mottled with whitish in the adult.

Range.—Scandinavia and northern Russia west to the Caucasus and Asia Minor, east to the Pyrenees.

2. ***Aquila chrysaëtos fulva*** **(Linnaeus)**

Falco fulvus LINNAEUS, Syst. Nat., ed. 10, i, 1758, 88 (Europe=England, ex Ray).

Very similar to *chrysaëtos*, but the tarsal feathers light rufous-brown with whitish mottlings.

Range.—British Isles.

3. ***Aquila chrysaëtos japonica*** **Severtzov**

Aquila fulva japonica Severtzov, Nouv. Mém. Soc. Imp. Nat. Moscou, xv, livr. 5, 1888, 182 (Japan).

A dark race, similar to *canadensis* in color, but smaller, and with the inner webs of all the remiges longitudinally mottled with white.

Range.—Japan, Korea, and probably northeastern China.

4. ***Aquila chrysaëtos kamtschatica*** **Severtzov**

Aquila fulva kamtschatica Severtzov, Nouv. Mém. Soc. Imp. Nat. Moscou, xv, livr. 5, 1888, 180 (Kamchatka).

A very large form with the tibial plumes blackish, reaching to the claws; tarsi buff.

Range.—Kamchatka.

Falco canadensis Linnaeus, Syst. Nat., ed. 10, i, 1758, 88 (Canada; based on *Aquila cauda alba* Edwards, Nat. Hist. Birds, i, pl. 1).—Gmelin, Syst. Nat., i, pt. 1, 1788, 256.

Aquila canadensis Heermann, Rep. Pacific R. R. Surv., ii, 1855, 30.—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 41.—Baird, Cat. North Amer. Birds, 1859, No. 39.—Henry, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 105 (New Mexico).—Barnard, Ann. Rep. Smithsonian Inst. for 1860 (1861), 434 (Chester County, Pa.).—Blakiston, Ibis, 1861, 319 (Saskatchewan); 1863, 47 (Mackenzie River to Arctic Ocean).—Boardman, Proc. Boston Soc. Nat. Hist., ix, 1862, 122 (Maine).—Coues and Prentiss, Ann. Rep. Smithsonian Inst. for 1861 (1862), 402 (winter vis. to District of Columbia).—Verrill, Proc. Essex Inst., iii, 1862, 142.—Allen, Proc. Essex Inst., iv, 1864, 81; Amer. Nat., i, 1867, 41; iii, 1869, 568.—Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 49 (mountains near Fort Whipple, Ariz., res.); 1868, 82 (s. Arizona); Amer. Nat., vii, 1873, 419.—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City).—McIlwraith, Proc. Essex Inst., v, 1866, 81.—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 272 (St. Michael and Shoktolik Hills, Alaska).—Cooper, Orn. California, Land Birds, 1870, 449; Amer. Nat., viii, 1874, 16.—Parker, Amer. Nat., v, 1871, 169.—Duges, La Naturaleza, i, 1870, 138 (Guanajuato, Mexico).—Maynard, Proc. Boston Soc. Nat. Hist., xiv, 1872, 382.—Snow, Birds Kansas, 1872, No. 19.—Dall, Proc. California Acad. Sci., v, pt. 1, 1873, 25 (Unalaska Island, Alaska; Unga Island, spring, 1872).—Merriam, U. S. Geol. and Geogr. Surv. Terr., 1873, 714.—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1874, 20, 28, 239 (lower Wabash Valley in winter).—Bendire, Proc. Boston Soc. Nat. Hist., xviii, 1875, 163 (Camp Harney, Oreg.).—Brewer, Proc. Boston Soc. Nat. Hist., xvii, 1875, 445.—Kumlien, Field and Forest, 1877, 128 (near San Bois Mountains, Indian Territory).—Cubas, Cuadro Geogr., Estadístico, Desc. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names, Mexico).

Aquila canadensis Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; not common).

Falco fulvus β canadensis Linnaeus, Syst. Nat., ed. 12, i, 1766, 125.

Aquila chrysaetus b. var. *canadensis* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 70 (Lexington, Mass.).

Aquila chrysaetus canadensis Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado, rocky parts of the mountains); vi, 1874, 173 (Sierra Nevada); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 314; Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois); Bull. Essex Inst., vii, 1875, 10 (w. Nevada), 21 (Ruby Mountains, Nev.), 34 (Parleys Peak, Utah), 39 (Nevada); Proc. U. S. Nat. Mus., iii, 1880, 194; Nom. North Amer. Birds, 1881, No. 449.—Nelson, Bull. Essex Inst., viii, 1876, 120 (ne. Illinois; formerly nested).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 136 (e. Oregon, breeding; habits).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; rare migr.).—Davie, Bull. Nuttall Orn. Club, vii, 1882, 123 (near Columbus, Ohio, Dec. 13, 1881).—Sennett, Bull. Nuttall Orn. Club, vii, 1882, 58 (Crawford County, Pa., Dec. 10; meas., etc.).—Wheaton, Rep. Birds Ohio, 1882, 579 (Ohio; listed).—Turner, Auk, ii, 1885, 157 (Attu Island, Aleutians); Proc. U. S. Nat. Mus., viii, 1885, 244 (Ungava, breeding).

Aquila chrysaetos canadensis Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 9 (Utah).—Ridgway, Bull. Essex Inst., vii, 1875, 13 (Carson City, Nev.), 39 (Nevada; breeding).—Nelson, Bull. Essex Inst., viii, 1876, 153 (ne. Illinois,

common in winter; "formerly nested throughout the State"; account of attack on hunter by pair feeding on carcass).—Swann, Synopt. List Aecip., pt. 2, 1919, 64; Synop. Accip., ed. 2, 1922, 109; Bull. Brit. Orn. Club, xlv, 1925, 70 (North America); Monogr. Birds Prey, ii, 1931, 30 (monogr.).—Oberholser, Auk, xl, 1923, 680 (nomencl.); Bird Life Louisiana, 1938, 173 (Louisiana; casual winter vis.; distr.; habits; food; nest).—Bailey, Condor, xxviii, 1926, 123 (Demarcation Point, Alaska).—American Ornithologists' Union, Check-list, ed. 4, 1931, 70 (distr.).—Baerg, Univ. Arkansas Agr. Exp. Stat. Bull. 258, 1931, 50 (descr.; distr.; food; Arkansas).—Nice, Birds Oklahoma, rev. ed., 1931, 75 (Oklahoma).—Peters, Check-list Birds of World, i, 1931, 254 (distr.); Bird-Banding, vii, 1936, 13 (South Carolina; ext. parasites).—Stanford, Auk, xlviii, 1931, 619 (Sevier County, Utah).—Sutton, Condor, xxxiii, 1931, 157 (Eskimo Point, Hudson Bay); Mem. Carnegie Mus., xii, 1932, 81 (Southampton Island); Ann. Carnegie Mus., xxiv, 1934, 9 (w. Panhandle of Oklahoma; fairly common; sw. records; nests).—Austin, Mem. Nuttall Orn. Club, No. 7, 1932, 64 (Newfoundland, Labrador).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 24 (Missouri; rare; winter).—Greene, Auk, xlix, 1932, 218, in text (spec.; Bellville, Ga.).—Howell, Florida Bird Life, 1932, 181 (genl.; Florida).—Miller, Condor, xxxiv, 1932, 96 (nesting; Sitgreaves Mountain, Ariz.).—Poole, Auk, xlix, 1932, 234 (Blue Mountain, near Eckville, Pa.); li, 1934, 20 (Kittatiny Ridge, Pa.; spec.); lv, 1938, 517, in text (weight and wing area).—Roberts, Birds Minnesota, i, 1932, 329 (distr.; habits; Minnesota).—Bailey, Brewer, and Bishop, Progr. Activ. Chicago Acad. Sci., iv, No. 2, 1933, 23 (Point Barrow, Alaska).—Dixon, Condor, xxxv, 1933, 161, in text (Igloo Creek, Alaska; habits); xlv, 1943, 207 (Kings Canyon National Park, Calif.).—McIlhenny, Auk, l, 1933, 431 (crit. of Louisiana records).—Murray, Auk, l, 1933, 194 (Virginia records: Covington, Looney, Upperville, The Plains, Wytheville, Nimrod Hill, Newcastle, Nottaway and Montgomery Counties, etc.).—Sumner, Univ. California Publ. Zool., xl, 1933, 278, in text (growth of young); xl, 1934, 331, in text (behavior of young).—Tyler, Condor, xxxv, 1933, 186, in text (habits).—Willett, Pacific Coast Avif., No. 21, 1933, 44 (sw. California; still rather common res. in mountains; restricted by advance of irrigation; breeds in Feb. and Mar.; syn.).—Youngworth, Wils. Bull., xlv, 1933, 32, in text (sev. records from South Dakota, Minnesota, Iowa, and Nebraska).—Brodkorb, Auk, li, 1934, 403, in text (Lacon, Ill.; spec.); liv, 1937, 100, in text (Marshall and Coles Counties, Ill.; 2 specs.).—Brooks, Auk, li, 1934, 370 (Pendleton County, W. Va.; numerous; several specs.).—Campbell, Auk, li, 1934, 370 (near Pioneer, La.; spec.); Wils. Bull., xlvi, 1934, 116, in text (Pioneer, La.; spec. Jan. 12, 1934).—Clark and Clark, Auk, li, 1934, 80 (Asheville, N. C.; 1 seen).—DeGroot, Condor, xxxvi, 1934, 8, in text (Eldorado County, Calif.; prob. nest).—Ganier, Auk, li, 1934, 371 (Tennessee).—Hall, Murrelet, xv, 1934, 14 (Fort Vancouver, Wash.; specimen).—Monson, Wils. Bull., xlvi, 1934, 42, in text (Cass County, N. Dak.; rare; 2 records).—Murray and Murray, Auk, li, 1934, 371 (Brewster County, Tex.; food habits).—Black, Auk, lii, 1935, 464, in text (Lake County, Ill.; 2 specs.); liv, 1937, 385, in text (Illinois: status; about 50 specimens).—Broun, Auk, lii, 1935, 243, 245 (Hawk Mountain, Pa.; 1934 migr.); lvi, 1939, 436, in text (Hawk Mountain, Pa.; migr.).—Huey, Auk, lii, 1935, 251 (Punta Penascosa, Mexico; 1 seen); Wils. Bull., xlviii, 1936, 122, in text (White Mountains, Ariz.; 1 rec.); Auk, lvi, 1939, 321, in text (Mount Turnbull, Ariz.; seen); Trans. San Diego Soc. Nat. Hist., ix, No. 32, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; 2 pairs).—Long, Univ.

Kansas Sci. Bull., xxxvi, 1935, 230 (w. Kansas; Nov.; common); Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; formerly common res.; now uncommon, except in winter).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 129, in text (se. Wyoming; permanent res.).—Nice, Bird-Banding, vi, 1935, 115, in text (behavior of captive birds).—Youngworth, Wils. Bull., xlvii, 1935, 216, in text (Fort Sisseton, S. Dak.; reg. migr.).—Bellrose, Auk, liii, 1936, 348, in text (Starved Rock State Park, Ill.; 1 seen).—Harper, Auk, liii, 1936, 382, in text (feathers).—Hudson and Sherman, Auk, liii, 1936, 111, in text (Townville, S. C., spec.).—Imler, Trans. Kansas Acad. Sci., xxxix, 1936, 200 (Rooks County, Kans.; fairly common winter res.).—Jewett, Murrelet, xvii, 1936, 43 (Harney County, Oreg.; young; 1 rec.).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 44 (Nevada; res.; occurs throughout State; especially common about higher mountain ranges; spec.); Amer. Midl. Nat., xix, 1938, 42 (Toyabe Mountain, Nev.; sev. records).—van Rossem, Pacific Coast Avif., No. 24, 1936, 20 (Charleston Mountains, Nev., probably confined to mountains during summer, descending to lower levels during cold weather); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 59 (Sonora; not uncommon res.).—Alexander, Univ. Colorado Stud., xxiv, 1937, 91 (Boulder County, Colo.; rare or infrequent res.; most records from foothills; spec.).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; status).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 126 (habits).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 293 (life hist.).—Friedmann, Journ. Washington Acad. Sci., xxvii, 1937, 433 (Kodiak Island, bones); Auk, lv, 1938, 290, in text (crit.; distr.).—Imler, Bird-Banding, viii, 1937, 168, in text (Rooks County, Kans.; weight).—Murphey, Contr. Charleston Mus., ix, 1937, 13 (Middle Savannah Valley, Ga.).—Silliman and von Bloeker, Condor, xxxix, 1937, 128, in text (Monterey County, Calif.; 1 carcass found; 1 sight rec.).—Stegmann, Faune U. R. S. S., Oiseaux, i, No. 5, Falconiformes, 1937, 170, 278 (crit.; descr.; ne. Siberia: Anadyr, Indigirka, Jana, and Jakutsk).—Stone, Birds Cape May, i, 1937, 281 (New Jersey; status; habits).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 23 (Brewster County, Tex.; breeds in Glass, Santiago, and Chisos Mountains).—Wallace, Auk, liv, 1937, 547, in text (Bennington, Vt.; spec.).—Wetmore, Proc. U. S. Nat. Mus., lxxxiv, 1937, 405 (Middle Mountain, Spruce Knob, and e. of Huntington, W. Va.); lxxxvi, 1939, 182 (Roan Mountain, Tenn.).—Compton, Univ. California Publ. Zool., xlii, No. 3, 1938, 176 (pterylosis).—MacLulich, Contr. Roy. Ontario Mus. Zool., No. 13, 1938, 9 (Algonquin Prov. Park, Ontario; winter vis.; less common now; spec.).—Roads, Wils. Bull., l, 1938, 202, in text (Kenton, Ohio; 1 record; habits).—van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 10 (Michigan; rare trans. and winter).—Cowan, Occ. Pap. British Colonial Prov. Mus., No. 1, 1939, 25 (Peace River district, Brit. Columbia; several specs.; immature).—Eliot, Auk, lvi, 1939, 75, in text (Chilmark, Mass.; spec.).—Kitchin, Murrelet, xx, 1939, 29 (Mount Rainier National Park; rare).—Niedrach and Rockwell, Birds of Denver and Mountain Parks, 1939, 52 (uncommon res.; nests; food habits).—Pettingill, Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 331 (rare trans. and vis.; 2 specs.).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 98 (Guadalupe Mountain region, w. Texas; permanent res.; skeleton).—Gabrielson and Jewett, Birds Oregon, 1940, 193 (permanent res. e. Oregon; only straggler to w. part; descr.; distr.; nest; food; photos (one of nest)).—Snyder, Auk, lvii, 1940, 564, in text (Cape Henrietta Maria, Ontario; nesting).—Sumner, Condor,

xlii, 1940, 39, in text (Pomona, Calif.; 1 band. return).—Todd, Birds Western Pennsylvania, 1940, 149 (w. Pennsylvania; descr.; life hist.; syn.).—Trautman, Misc. Publ. Univ. Michigan Mus. Zool., No. 44, 1940, 216 (Buckeye Lake, Ohio; casual vis.).—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 12 (sw. Ohio; rare migr.).—Rivers, Condor, xliii, 1941, 66, in text (Nevada; food habits).—Stabler, Auk, lviii, 1941, 560 (used in parasite experiment).—Cruickshank, Birds around New York City, 1942, 139 (New York City; status).—Laing, Condor, xliv, 1942, 176 (coastal British Columbia).—Musselman, Auk, lix, 1942, 106, in text (w. Illinois).—Pearson, Brimley, and Brimley, Birds North Carolina, 1942, 98 (North Carolina).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 380 (Uinta Basin, Utah).—Behle, Bull. Univ. Utah, xxxiv, No. 2, 1943, 24, 36 (Washington County, sw. Utah; Pine Valley Mountain region); Condor, xlvi, 1944, 71 (Utah).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 359 (Gulf coast of Mississippi; seen once).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 105 (California; permanent res.).—Hill, Auk, lxi, 1944, 230 (meas.; sex dimorphism).—Knox, Auk, lxi, 1944, 23 (Gunnison County, Colo., frequently observed).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 178 (Kansas; occ. vis.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 35 (Georgia; rare).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 9 (Nebraska; rare).—McAllister and Marshall, Auk, lxii, 1945, 183 (Fremont National Forest, Oreg.).—Packard, Auk, lxii, 1945, 375 (Rocky Mountain National Park, Colo.).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 38 ("Navaho Country," se. Utah and ne. Arizona; sparse breeding res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Hartman, Auk, lxiii, 1946, 52 (endocrines).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mount Katahdin region, Maine).—Wetherbee, Auk, lxiii, 1946, 592 (Massachusetts).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., i, 1947, 199 (Idaho).—Hudson, Murrelet, xxviii, 1947, 2 (10 miles w. of Anatone, Blue Mountains area, Wash.).—Stewart and Robbins, Auk, lxiv, 1947, 268 (3 records for Maryland; Glen Burnie, Boonsboro, Patuxent Refuge near Bowie).—Williams, Auk, lxiv, 1947, 186 (Simpson Creek, Weld County, Colo.; tick parasites, June 19, 1943).

Aquila chrysaetos β canadensis Ridgway, Field and Forest, ii, 1877, 210 (Colorado, breeding); Orn. 40th Parallel, 1877, 590 (Carson City and East Humboldt Mountains, Nev.).

Aquila chrysaetus β canadensis Ridgway, *in* Belding, Proc. U. S. Nat. Mus., i, 1879, 437 (Stockton, Calif., May; mountains of Tuolumne County, Soda Springs).

Aquila chrysaetas canadensis Witherby et al., Handb. Brit. Birds, iii, 1939, 40, 43, in text (North America).

Falco fulvus (not of Linnaeus) Shaw, Gen. Zool., vii, pt. i, 1809, 71, part (North America).—Wilson, Amer. Orn., vii, 1818, 13, pl. 55, fig. 1.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 345; Obs. Wilson's Amer. Orn., 1826 [6]; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 25; Contr. Maclurian Lyc., i, 1827, 10.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 62.—Peabody, Rep. Orn. Mass., 1839, 262.

Aquila fulva (not *Falco fulvus* Linnaeus) Vieillot, Nouv. Dict. Hist. Nat., i, 1816, 229, part (Louisiana; Florida; Hudson Bay).

Aquila chrysaëtos? (not *Falco chrysaëtos* Linnaeus) Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 12.

Aquila chrysaëtos BONAPARTE, Geogr. and Comp. List, 1838, 2; Consp. Gen. Av., i, 1850, 13, part.—AUDUBON, Synopsis, 1839, 9; Birds Amer., 8vo ed., i, 1840, 50, pl. 12.—NUTTALL, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 65.—GIRAUD, Birds Long Island, 1844, 8 (Islip, Long Island, N. Y.; spec.).—BARRY, Proc. Boston Soc. Nat. Hist., 1854, 2 (Wisconsin; spec. from Racine).—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, 1855, 283 (New Mexico).—BREWER, North Amer. Ool., i, 1857, 45.—MAXIMILIAN, Journ. für Orn., vi, 1858, 9.—GRAY, Hand-List, i, 1869, 10, No. 87, part (North America).—ALLEN, Proc. Boston Soc. Nat. Hist., xvii, 1874, 35 (Montana and Dakota, occ.); Bull. Amer. Mus. Nat. Hist., xxi, 1905, 243 (Marcova, ne. Siberia; breeding).—HOFFMAN, Proc. Boston Soc. Nat. Hist., xviii, 1875, 174 (Grand River Agency, Dakota Terr.; headwaters of Grand River).—GIBBS, U. S. Geol. and Geogr. Surv. Terr., Bull. 5, No. 3, 1879, 491 (Michigan; 2 records).—AMERICAN ORNITHOLOGISTS' UNION, Checklist, 1886, and ed. 2, 1895, No. 349, 135; ed. 3, 1910, 162.—RALPH and BAGG, Trans. Oneida Hist. Soc., iii, 1886, 119 (Frankfort, Herkimer County, N. Y., Oct. 23, 1885).—SCOTT, Auk, iii, 1886, 423 (Santa Catalina Mountains, Ariz., res. above 4,000 feet).—BREWSTER, Auk, iv, 1887, 75 (Paxton, Mass., Oct. 22, 1883, Lynnfield, Mass., Nov. 23, 1886).—BRYANT, Proc. California Acad. Sci., ser. 2, ii, 1889, 281 (San Pedro Mártir, Lower California, from coast up to 11,000 feet).—RIDGWAY, Orn. Illinois, i, 1889, 483.—TAYLOR, Zoë, i, 1890, 43 (Santa Clara and San Benito Counties, Calif.; breeding habits).—GOSS, Hist. Birds Kansas, 1891, 273 (Kansas; rare res.).—MACFARLANE, Proc. U. S. Nat Mus., xiv, 1891, 433 (breeding on Anderson River, mouth of Wilmot Horton River; descr. nests).—BENDIRE, Life Hist. North Amer. Birds, i, 1892, 263, pl. 9, figs. 3, 5.—COUES, Auk, ix, 1892, 201 (Thumb Butte, near Prescott, Ariz., breeding).—HATCH, Notes Birds Minnesota, 1892, 195, 451 (Minnesota; records; habits; descr.).—OBERHOLSER, Auk, ix, 1892, 200 (near Wooster, Ohio, Nov. 10, 1891); U. S. Biol. Surv. Bull. 27, 1906, 20, pl. 2 (range, habits, food, etc.).—RHOADS, Proc. Acad. Nat. Sci. Philadelphia, 1892, 115 (Cañon de Oro, Santa Catalina Mountains, Ariz.); 1895, 479 (Roan Mountain and Bald Mountain, Blount County, e. Tennessee, breeding).—ANTHONY, Zoë, iv, 1893, 234 (San Telmo, Lower California; breeding); Auk, xii, 1895, 138 (San Fernando, Lower California).—FISHER, Hawks and Owls United States, 1893, 93, pl. 13.—SAGE, Auk, xii, 1895, 179 (Vineland, N. J., Feb. 19, 1868).—BRAISLIN, Auk, xiii, 1896, 81 (near Trenton, N. J., late fall 1888).—BROCK, Auk, xiii, 1896, 256 (near Portland, Maine, Oct. 14, 1891).—KNIGHT, Auk, xiii, 1896, 82 (Sandy River Mountain, nw. Maine; breeding?).—BAGG, Auk, xiv, 1897, 227 (Oneida County, N. Y., May 1896).—COOKE, Colorado State Agr. Coll. Bull. 37, 1897, 75 (Colorado; common res.); Bull. 56, 1900, 204 (Breckenridge, Colo.; breeds).—LANO, Auk, xiv, 1897, 317 (near Aitkin, Minn., Mar. 19, 1897; measurements).—RAWSON, Auk, xiv, 1897, 215 (Salem, Conn., Jan. 19, 1896; weight and wing spread).—VERRILL, Auk, xiv, 1897, 89 (Woodbridge, Conn., Oct. 1, 1896).—CHAPMAN, Auk, xv, 1898, 57 (Long Branch, N. J., Aug. 9, 1897).—MITCHELL, Auk, xv, 1898, 308 (San Miguel County, N. Mex., breeding up to timberline); Can. Field Nat., xxxviii, No. 6, 1924, 109 (Saskatchewan; Qu'Appelle Valley and Cypress Hills; uncommon).—LANTZ, Trans. Kansas Acad. Sci., 1896–97 (1899), 256 (Kansas; rare res.).—PURDY, Auk, xvi, 1899, 77 (Wayne County, Mich., Jan. 1899).—NASH, Check List Birds Ontario, 1900, 30 (Ontario; irreg.); Check List Vert. Ontario: Birds, 1905, 42 (Ontario; irreg. vis.).—SUSHKIN, Bull. Brit. Orn. Club, xi, 1900, 6, 7 (crit.; two forms in North America, both distinct from Old World forms).—

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1 rec.).—Barrows, Michigan Bird Life, 1912, 284.—Lacey, Auk, xxix, 1912, 254 (headwaters of Guadalupe River, near Kerrville, Tex.; breeding).—Sclater, Hist. Birds Colorado, 1912, 181 (Colorado; not uncommon res. in mountains).—Smith, Auk, xxix, 1912, 255 (San Benito, Tex., 19 miles nw. of Brownsville, Jan. 1912).—Smyth, Auk, xxix, 1912, 516 (Montgomery County, Va., Aug., Nov., Dec., Feb.).—Willett, Pacific Coast Avif., No. 7, 1912, 48 (breeding in mountain districts of Ventura, Los Angeles, San Bernardino, and San Diego Counties, Calif.); No. 21, 1933, 44.—Bailey, Birds Virginia, 1913, 118 (Virginia; range, hypothetical breed. list); Birds Florida, 1925, 71, pl. 39 (fig.; distr.; Florida).—Betts, Univ. Colorado Stud. Zool., x, 1913, 194 (Boulder County, Colo.; res.).—Grave and Walker, Birds Wyoming, 1913, 42 (Wyoming; common; mountains).—Reichenow, Die Vögel, i, 1913, 396.—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 81.—Tyler, Pacific Coast Avif., No. 9, 1913, 43 (Fresno County, Calif.; res. in mountains).—Eaton, Birds New York, ii, 1914, 90, pl. 49.—Shelton, Univ. Oregon Bull., new ser., xiv, No. 4, 1917, 20, 27 (wc. Oregon; irreg.).—Stoddard, Auk, xxxiv, 1917, 65 (Sauk County, Wis.; breeding prior to 1908).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 142 (monogr.; Iowa).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 170 (status, North Carolina).—Dice, Condor, xxii, 1920, 180 (Tanana River, above Fairbanks, Alaska, Aug. 2; head of n. fork of Kuskokwim, May 18).—Swales, Proc. Biol. Soc. Washington, xxxiii, 1920, 182 (Upperville, Fauquier County, Va., March 10, 1919; Peaks of Otter, Va.; Dec. 1899 or Jan. 1890; Wytheville, Va., 2 specs. Feb. 5, 1896).—Over and Thoms, Birds South Dakota, 1921, 86 (South Dakota; common; food; nest.).—Saunders, Pacific Coast Avif., No. 14, 1921, 64 (Montana; genl.).—Gabrielson, Condor, xxiv, 1922, 33, in text (Harney Valley, Oreg.); Auk, xli, 1924, 556 (status in Wallowa County, Oreg.).—Lano, Auk, xxxix, 1922, 258 (attacked by porcupine).—Wilson, Auk, xxxix, 1922, 236 (Bowling Green, Ky.).—Dawson, Birds California (stud. ed.), iii, 1923, 1701 (genl.; California).—Griscom, Birds New York City Region, 1923, 193 (status in New York City region).—Jensen, Auk, xl, 1923, 455 (n. Santa Fe County, N. Mex.; breeding).—Oberholser, Auk, xl, 1923, 680 (nomencl.).—Wood, Misc. Publ. Mus. Zool. Univ. Michigan, No. 10, 1923, 40 (North Dakota; rare); Condor, xlviii, 1946, 143, in text (killing a calf; California).—Abbott, Condor, xxvi, 1924, 194, in text (incubation period).—Beck, Auk, xli, 1924, 292, in text (Pennsylvania German common names).—Gabrielson and Jewett, Auk, xli, 1924, 298 (Oakdale and Sentinel Butte, N. Dak.).—Grinnell and Storer, Anim. Life Yosemite, 1924, 292 (descr.; distr.; habits; Yosemite, Calif.).—Hanna, Condor, xxvi, 1924, 148, in text (egg weight).—Herrick, Auk, xli, 1924, 92 in text (nesting habits).—Holt, Auk, xli, 1924, 601 (Autauga County, Ala.).—Howell, Birds Alabama, 1924, 138; ed. 2, 1928, 138 (distr.; habits; Alabama).—Nice and Nice, Birds Oklahoma, 1924, 43 (genl.; Oklahoma).—Richards, Condor, xxvi, 1924, 100 (Grass Valley district, Calif.).—Walker, Condor, xxvi, 1924, 181 (Tillamook, Oreg.).—Gloyd, Wils. Bull., xxxvii, 1925, 145 (econ. status; Kansas).—Griscom and Crosby, Auk, xlii, 1925, 536 (status; Brownsville, Tex.).—Michael, Condor, xxvii, 1925, 110 (Yosemite).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 95 (Rancho La Brea; bones).—Weston, Auk, xlii, 1925, 443, in text (Walnut Hill, Fla.; near Alabama line).—Wheeler, Birds Arkansas, 1925, 52 (Arkansas; genl.).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 104 (descr. characters).—Bruner, Condor, xxviii, 1926, 232 (Baboquivari Mountains, Ariz.).—Huey, Auk, xliii, 1926, 353 (La Grulla; San Quintín Plain, nw. Lower California).—

Larson, Wils. Bull., xxxviii, 1926, 28 (status in Sioux Falls region, S. Dak.); xl, 1928, 49 (e. McKenzie County, N. Dak.).—Lawrence, Auk, xliii, 1926, 369, in text (Houston, Tex.).—Neilson, Condor, xxviii, 1926, 100 (Wheatland, Wyo.).—Racey, Auk, xliii, 1926, 322 (Cheakamus Lake; Red Mountain; Alpha Lake, Brit. Columbia).—Taverner, Birds Western Canada, 1926, 200 (fig.; descr.; habits; distr. in w. Canada); Nat. Mus. Canada, Bull. 50, 1928, 93 (near Belvedere, Alberta; fall rec.); Canada's Eastern Arctic, 1934, 119, in text (Hudson Bay and Ungava Bay, Canada); Can. Water Birds, 1939, 148 (Canada; descr.; col. fig.).—Williams, Wils. Bull., xxxviii, 1926, 33 (stat. in Red River Valley, ne. North Dakota).—Bailey, Auk, xliv, 1927, 203 (Mount Robert, se. Alaska).—Bergtold, Auk, xliv, 1927, 433 (Denver, Colo.).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 144, pl. 38, 41 (fig.; descr.; habits; New England).—Green, Wils. Bull., xxxix, 1927, 172, in text (nesting; Woods County, Okla.).—Linsdale, Auk, xliv, 1927, 53 (Coolidge, Two Buttes, Colo.).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 299 (Modoc County, Calif.).—Pickens, Auk, xliv, 1927, 438 (occas. in South Carolina); xlv, 1928, 67 (Piedmont region, S. C.).—Tanner, Condor, xxix, 1927, 198 (St. George, Utah).—Willett, Condor, xxix, 1927, 59 (Juneau, Craig, and Ketchikan, Alaska).—Aiken, Auk, xlv, 1928, 373 (spec.; Cripple Creek, Colo.).—Alford, Ibis, 1928, 197 (Vancouver Island).—DeGrott, Condor, xxx, 1928, 360, in text (eggs).—Hantszch, Can. Field-Nat., xlii, 1928, 17 (Fort Chimo, Ungava Bay; breeds).—Perkins, Wils. Bull., xl, 1928, 196, in text (Indiana records).—Pickens, Wils. Bull., xl, 1928, 190 (upper South Carolina).—Ray, Condor, xxx, 1928, 250, in text (eggs).—Skinner, Condor, xxx, 1928, 237 (Yellowstone Park; winter).—Sutton, Auk, xlv, 1928, 375, in text (sev. records; Pennsylvania; 1927–28).—Cooke, Proc. Biol. Soc. Washington, xlii, 1929, 36 (Washington, D. C.).—Bolander and Bryant, Condor, xxxi, 1929, 253, in text (flying defense).—Hendee, Condor, xxxi, 1929, 25 (Moffat County, Colo.).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 79 (Chitina River, region, Alaska; habits; common).—Slevin, Proc. California Acad. Sci., ser. 4, xviii, 1929, 45, in text (nesting habits).—Summer, Condor, xxxi, 1929, 85, in text (growth of young), 127, in text (Death Valley); Auk, xlvi, 1929, 161, in text (growth and behavior of young).—Fuller and Bole, Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 46 (observ., Wyoming).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 190 (distr.; Lassen Peak region, n. California).—Hanna, Condor, xxxii, 1930, 121 (habits; nesting, etc., in s. California).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea); xxxvii, 1935, 207, in text (Baker, Nev.; Pleistocene bones); xxxviii, 1936, 34, in text (Rancho La Brea, Calif.; Pleistocene bones).—Kemsies, Wils. Bull., xlii, 1930, 204 (status; Yellowstone Park, Wyo.).—Munro, Condor, xxxii, 1930, 66 (Okanagan Landing, Brit. Columbia).—Bowles and Decker, Murrelet, xii, 1931, 67, in text.—Gabrielson, Condor, xxxiii, 1931, 113 (Gold Hill, Oreg.).—Greene, Auk, xlviii, 1931, 118, in text (Oconee River, Oglethorpe County, Ga.; captured alive).—Huey, Condor, xxxiii, 1931, 37 (Pt. Barrow, Alaska).—Jaques, Wils. Bull., xliii, 1931, 58, in text (near Mount Pleasant, Iowa).—Shelley, Auk, xlviii, 1931, 118, in text (West Chesterfield, N. H.).—Guthrie, Wils. Bull., xliv, 1932, 113, in text (eats snakes).—Howard and Dodson, Condor, xxxv, 1933, 235, in text (Point Mugu, Calif.; shell-mound remains).—Howard and Miller, Condor, xxxv, 1933, 16 (bones; Organ Mountains, N. Mex.).—Taverner, Birds Canada, 1934, 134 (Canada; genl.).—Taverner and Sutton, Ann.

Carnegie Mus., xxiii, 1934, 27 (Churchill, Manitoba; probably occ. vis.; spec.; feeding on ptarmigan).—Lofberg, Condor, xxxvii, 1935, 171, text (Fresno County, Calif.; 2 nest records; habits).—Miller, Condor, xxxvii, 1935, 77, in text (McKittrick, Calif.; Pleistocene bones).—Dale, Condor, xxxviii, 1936, 209, in text (Sacramento Valley, Calif.; econ. status).—Grinnell and Linsdale, Vert. Anim. Point Lobos Reserve, 1936, 39, 55 (Point Lobos, Calif.; occ.; food; fighting tactics).—Stevenson, Condor, xxxviii, 1936, 245, in text (Hualpi Mountains; 1 record).—Dixon, Condor, xxxix, 1937, 49, in text (San Diego County, Calif.; life hist.; nest. study; food habits).—Nice, Bird-Banding, viii, 1937, 130, in text (San Diego County, Calif.; habits; status); xii, 1941, 36, in text (San Diego County; nest. habits).—Curtis and Miller, Auk, lv, 1938, 231, in text (crit.).—Rawles Condor, xl, 1938, 124, in text (Colorado Springs, Colo.; nest. habits).—Roads, Wils. Bull., l, 1938, 64, in text (Ohio; 4 records).—Williams, Condor, xl, 1938, 258, in text (San Bernardino County, Calif.; 1 record).—Hargrave, Condor, xli, 1939, 207, 209, text (Flagstaff, Ariz.; prehist. bones).—Shortt, Contr. Roy. Ontario Mus. Zool., No. 17, 1939, 11 (Yakutat Bay, Alaska; 1 rec.).—Allin, Trans. Roy. Can. Inst., xxiii, pt. 1, 1940, 95 (Darlington Township, Ontario; no recent records).—Clarke, Nat. Mus. Canada, Bull. 96, 1940, 47 (Thelon Game Sanctuary, nw. Canada).—Engels, Auk, lviii, 1941, 63, in text, 64, diagram (wing skeletal ratios).—Glenny, Ohio Journ. Sci., xli, 1941, 46, 49, in text (anatomy).—Hand, Condor, xliii, 1941, 224 (St. Joe National Forest, Idaho).—Snyder, et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 43 (Prince Edward County, Ontario; rare and irreg. fall trans.).—Bryant, Condor, xliv, 1942, 41, in text (n. Arizona desert).—DeMay, Condor, xliv, 1942, 229 (bones, Buena Vista Lake, Calif.).—Sutton and Phillips, Condor, xliv, 1942, 59 (Papago Indian Reservation, Ariz.).—Allan and Sime, Wils. Bull., lv, 1943, 34 (Texas Panhandle; year-round res.; breeds).—Baldwin, Condor, xlvi, 1944, 35, in text (Boulder Dam, Nev.).—Monson, Condor, xlvi, 1944, 20 (Yuma, Ariz.; obs.).—Sooter, Condor, xlvi, 1944, 88 (feeding habits, Oreg.).—Wing, Murrelet, xxv, 1944, 4 (Okanogan Cascades, Wash.).—Marshall, Condor, xlvii, 1945, 171 (winter; Boise National Forest, Idaho).—Munro, Can. Journ. Res., D, xxiii, 1945, 54 (Cariboo Parklands, Brit. Columbia; 3 records).—Wilson, Condor, xlvii, 1945, 150 (Kettleman Hills area, Calif.).—Bond, Condor, xlviii, 1946, 107, in text (competition with duck hawks).—Murie, Condor, xlviii, 1946, 254 (Mount McKinley National Park, Alaska).—Cahn, Condor, xlix, 1947, 80 (Dutch Harbor area, Alaska; uncommon).—Hill and Work, Condor, xlix, 1947, 74 (California; ectoparasites).

Aquilla chrysaetos Pierce, Wils. Bull., xlii, 1930, 268 (stat., Buchanan County, Iowa).

Falco chrysaëtos (not of Linnaeus) Audubon, Orn. Biogr., ii, 1834, 464, pl. 181.

Aquila chrysaetus Coues, Key North Amer. Birds, 1872, 219; Check List North Amer. Birds, 1873, No. 361; Birds Northwest, 1874, 368; U. S. Geol. and Geogr. Surv. Terr. Bull. 4, 1878, 627 (Sweet Grass Hills, Mont.; breeding); Check List North Amer. Birds, ed. 2, 1882, No. 532; Key North Amer. Birds, ed. 2, 1884, 554.—Ridgway, Ann. Lyc. Nat. Hist. New York, x, 1874, 381 (Illinois).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 235, part (Fort Simpson, Mackenzie); Hand-List, i, 1899, 261, part (North America).—Boies, Cat. Birds Southern Michigan, 1875, No. 140 (s. Michigan; trans.).—Snow, Birds Kansas, ed. 3, 1875, 10, No. 197.—Gurney, Ibis, 1877, 211–215, in text, part (crit.); List Diurn. Birds Prey, 1884, part (crit.); Cat. Birds Prey, 1894, 23.—

Johnson, Bull. Nuttall Orn. Club, iv, 1879 (Gravesend, Long Island, Dec. 6, 1877; measurements).—Boardman, Bull. Nuttall Orn. Club, vi, 1881, 58 (Milltown, New Brunswick, Oct. 16).—Merriam, Bull. Nuttall Orn. Club, vii, 1882, 238 (Point de Monts, Quebec, breeding).—Wheaton, Rep. Birds Ohio, 1882, 432 (Ohio).—Seton, Auk, iii, 1886, 154 (Big Plain and along Red River, Manitoba; res.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 225 (Mexico; rare).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 91 (Ciudad Durango and Guanajuato, Mexico).—Kelso, Ibis, 1926, 703 (Arrow Lakes, Brit. Columbia).

Aquila chrysaëtos chrysaëtos Sutton, Birds Pennsylvania, 1928, 64 (Pennsylvania; descr.; distr.).

Aquila chrysaetos Johnston, Birds West Virginia, 1923, 88 (West Virginia).

Buteo chrysaetos Ricker and Clarke, Contr. Roy. Ontario Mus. Zool., No. 16, 1939, 7 (Lake Nipissing, Ontario).

Genus THALLASOAËTUS Kaup

Thallasoaëtus Kaup, Classif. Säugeth. und Vögel, 1844, 123. (Type, by monotypy *Aquila pelagica* Pallas.)

Thalassoaëtus (emendation) Gray, Gen. Birds, i, 1845, 17.

Thallasaëtus (emendation) Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261.

Thalassaëtus (emendation) Kaup, Isis, 1847, 112; *in* Jardine's Contr. Orn., 1850, 74.

Thalassiaëtus (emendation) Reichenbach, Av. Syst. Nat., 1850, pl. 96.

Thallosaëtus (emendation) Kaup, Arch. für Naturg., 1851, i, 89.

Thalassiaëtos (emendation) Brandt, Bull. Phys.-Math. Acad. St. Pétersbourg, ix, 1851.

Thalassaëtos (emendation) Brandt, Journ. für Orn., 1853, 189.

Haliaeetus Hartert, Vög. pal. Fauna, ii, 1914, 1175.—Peters, Check-list Birds of World, i, 1931, 258, 259.

Very large and powerful sea eagles (wing about 585–650 mm.) resembling *Haliaeetus*, but differing in the strongly cuneate or graduated tail, consisting of 14 subacuminate rectrices, much larger and relatively deeper bill, distinctly arched culmen, and differently formed nostrils.

Bill relatively very large and deep (nearly as long as head), its depth at anterior margin of cere considerably greater than more than half the chord of culmen, the latter very strongly decurved from base, its length (chord) equal to about two-thirds of the length of tarsus, slightly less than length of middle toe without claw, the tip of maxilla forming a well-produced unguis, the acute tip of which inclines slightly backward; maxillary tomium faintly or very slightly "festooned" posteriorly, a similar slight convexity showing on the commissural edge of the cere; nostril obliquely vertical, narrowly ovate or nearly fusiform, situated above middle of cere, near anterior margin of the latter, to which its inner surface is gradually beveled, the posterior raised margin somewhat rimmed; cere relatively broad, its length on top, where distinctly arched, nearly if not quite equal to one-third

the chord of culmen. Wing large and pointed, the longest primary exceeding distal secondary by about one-third the length of wing; third primary (from outside) slightly longest, the second and fourth about equal, the first (outermost) intermediate between sixth and seventh; five outer primaries with inner webs abruptly emarginated, the sixth sinuated, the second to sixth, inclusive, sinuated on outer webs; secondaries broad, their tips subtruncate, reaching in closed wing, beyond seventh primary. Tail about two-thirds as long as wing, strongly cuneate (the graduation equal to nearly, sometimes quite, one-third the total length of middle rectrices), composed of 14 broad, rigid subacuminate rectrices. Tarsus slightly less than one-sixth as long as wing, moderately stout, the upper half (approximately) of acrotarsium densely feathered, elsewhere covered with small hexagonal and roundish scales, except on acrotarsium immediately below the feathered portion, where there are a few transverse scutella; middle toe, without claw, about three-fourths as long as tarsus; outer toe slightly longer than inner, reaching (without claw) to about the proximal third of the subterminal phalanx of the middle toe; hallux shorter than inner toe; claws large, strongly curved, moderately acute, conspicuously graduated in size, that of outer toe only about as long as that of hallux, the latter about as long as that of inner toe, but stouter; upper surface of toes with a nearly continuous series of transverse scutella, the under surface roughly papillose or almost spiculate; no trace of web between basal phalanges of outer and middle toes.

Plumage and coloration.—Plumage in general full and compact, the feathers of pileum, hindneck, and foreneck lanceolate, forming a distinct "hackle," those of the chest, breast, and abdomen also lanceolate, but less distinctly so; plumage of thighs, and under tail coverts full, soft, and rather loose webbed; tail coverts long and broad, covering considerably more than basal half of tail; loral region nearly bare, with only scant, short bristles. General color dusky grayish brown; adults with tail and tail coverts (in one species the forehead, lesser wing-coverts, and thighs also white), the bill, cere, and feet orange-yellow; young with tail, etc., only partly white, the bill and cere dusky.

Range.—Northeastern Asia, one species accidental in Aleutian and Pribilof Islands, Alaska. (Two species[35])

Type.—*Thallasoaëtus pelagicus* (Pallas).

[35] *Thallasoaëtus niger* Heude (*Haliaetus niger* Heude, Naturaliste, 1887, July 1, 95: Mer de Tartaris=Korea) is sometimes considered a subspecies of *T. pelagicus*. I have seen no specimens, however, and therefore follow Peters (Check-list Birds of World, i, 1931, 258) in using a binomial for *pelagicus*. The form *niger* is said to differ from *pelagicus* in having a deeper bill, and in having the white color restricted to the tail and under tail coverts; the rest of the plumage is black.

THALLASOAËTUS PELAGICUS (Pallas)

STELLER'S SEA EAGLE

Adult (sexes alike).—Forehead pale buffy white, the feathers with chaetura drab shaft streaks; crown and occiput chaetura drab, the feathers tipped and edged with pale olive-buff, especially on the postero-lateral portions of the crown and the sides of the occiput; nape and a broad band extending thence around the sides of the neck very pale

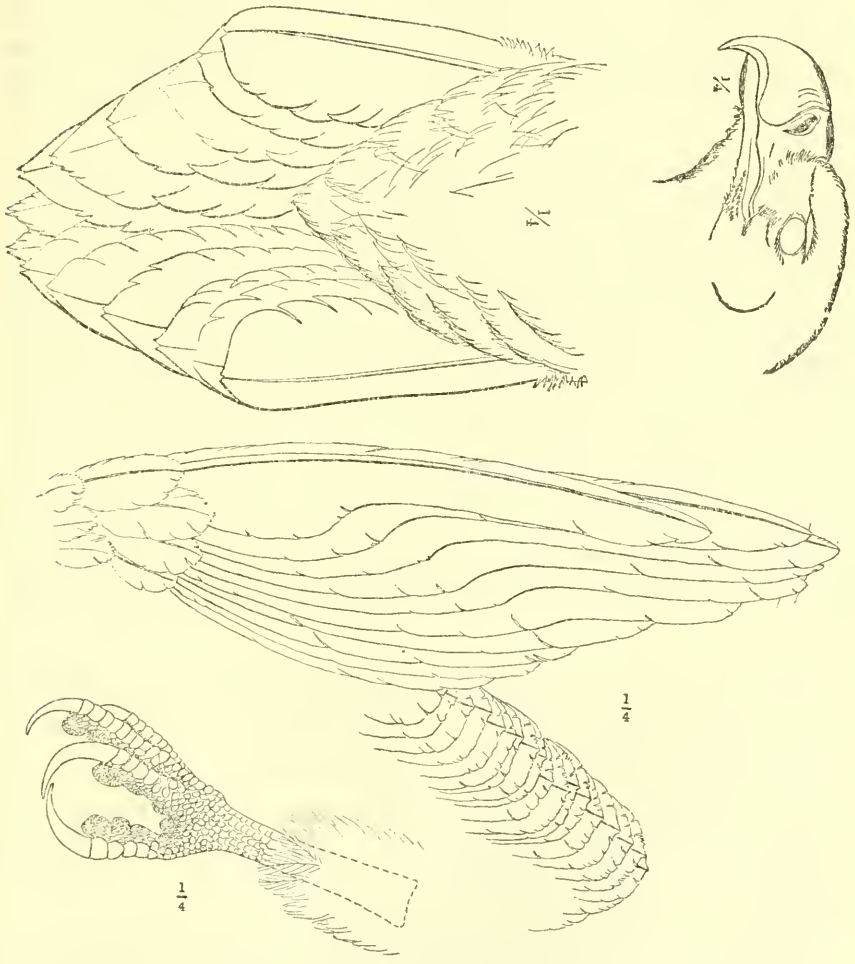

FIGURE 35.—*Thallasoaëtus pelagicus.*

olive-buff to creamy white, the feathers lanceolate, chaetura drab basally with a gradually paling distal extension of the same along the shaft; scapulars, interscapulars, upper back, greater upper wing coverts, and remiges fuscous-black, each feather with a very narrow

terminal edge of pale fuscous to hair brown; lesser and median upper wing coverts, alula, lesser under wing coverts, lower back, rump, tail, upper and under tail coverts, flanks, and thighs pure white; superciliary stripe from above the bare loreal area to behind the eye, cheeks, auriculars, chin, middle of throat, and sides of neck, except for the band mentioned above, chaetura drab to fuscous-black with obsolete paler shaft stripes; lower throat paler fuscous, the feathers with elongated pale olive-buff to creamy white tips; breast, sides, and abdomen mummy brown to rather light fuscous; median and greater under wing coverts fuscous-black; iris cream to light yellow; cere and bare orbital area, tarsi, and toes, intense golden yellow; bill bright yellow with a definite orange tinge; claws horny whitish, blackish only basally.

Immature (sexes apparently alike, but no definitely sexed birds of this stage seen, the differences in size alone suggesting the presence of both sexes).—Similar to the adult, but with no whitish or pale olive-buff on the forehead, crown, nape, and throat; no white on the wing coverts, which are dark fuscous; the inner secondaries and the scapulars much mottled or blotched with white, sometimes chiefly white, broadly tipped and otherwise mottled with fuscous; all the remiges white at base, this being very conspicuous on the under surface; lower back, rump, upper tail coverts, and tail white broadly tipped and subterminally mottled with fuscous, the mottling very extensive covering most of the feathers on the lower back, rump, and, to a lesser extent, the upper tail coverts; most of the feathers of the upperparts with white bases which occasionally show through; the same also true for those of the underparts; thighs and flanks dark fuscous like the abdomen; under tail coverts fuscous mottled and blotched with dirty white.[36]

Juvenal.—Similar to the immature plumage, but with the general tone of the plumage darker; almost fuscous-black, rectrices much mottled with fuscous and basally of this color.

Natal down.—At first said to be pure white all over; later (as seen in one bird in post-natal molt) smoky light drab down on the body and legs, slightly darker on the head.

Adult male.—Wing, 600–610; tail 320; culmen from cere 63–65; tarsus 98–99; middle toe without claw 74 mm.[37]

[36] It seems (but is not definitely established) that the birds become more whitish on the lower back, rump, upper and under tail coverts, and tail, and less so on the bases of the body feathers with successive immature plumages, so that the transition from the juvenal to the adult stage is relatively gradual.

[37] Two specimens from Kamchatka. Three unsexed birds from the same place, probably males, have the following dimensions: Wing, 585, 590, 605; tail, 300, 313, 315; culmen from cere 66, 66, 67; tarsus 97, 97; middle toe without claw 67, 75 mm.

Adult female.—Wing 648; tail 320; culmen from cere 70; tarsus 102; middle toe without claw 82 mm. (1 specimen).

Range.—Breeds in northeastern Siberia (Yakutsk, Avatcha Bay, Gichiga), Kamchatka (Petropaulski) and the countries bordering the Okhotsk Sea, and Sakhalin Island (Nikolski; Korsakoff).

Winters south to Korea, Japan (Hokkaido, Hondo, Shikoku, South Island of Satsuma, Koshii, Yezo), Kurile Island, Sakhalin Island, the Riu-Kiu Islands, Amurland, and Ussuriland.

Casual on Bering Island, the Aleutian Islands (Unalaska), the Pribilof Islands (St. Paul), and Kodiak Island; one record for eastern China (Peking).

Type locality.—Islands between Kamchatka and America.

Aquila pelagica PALLAS, Zoogr. Rosso-Asiat., i, 1826, 343, p. [9] (Kamchatka; Aleutian Islands; based on *White Eagle* Pennant, Arctic Zool., ii, 1785, 197; *White-bellied Eagle* Latham, Synop. Birds, i, 1781, 33).—KITTLITZ, Kupfert, i, 1832, 1, pl. ii, fig. 1; *in* Lütke, Voy. Arct. Monde, Atlas, Part. hist., pl. xiii, Denkw., i, 1858, 330, ii, 1858, 364.—MIDDENDORF, Sibir. Reis., ii, 1853, 125.—SEEBOHM, Ibis, 1884, 183 (Yezo, Japan; crit.).

Haliaetus (Thallassaetus) pelagicus KAUP, Mus. Senckenb., iii, 1845, 261.

Haliaetus pelagicus KAUP, *in* Jardine's Contr. Orn., 1850, 74.—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 452; Illustr. Birds California, Texas, etc., 1854, 31, 110, pl. 6; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 42; Birds North Amer., 1860 ed., 42.—BONAPARTE, Rev. Mag. Zool., vi, 1854, 532.—BAIRD, Cat. North Amer. Birds, 1859, No. 40.—SCHLEGEL, Mus. Pays-Bas, ii, No. 3, livr. 1, 1862, 14 (monogr.); No. 36, livr. 10, 1873, 117.—ELIOT, New and Unfig. North Amer. Birds, pt. 6, 1867 (vol. 2), pl. 34 and text.—SWINHOE, Proc. Zool. Soc. London, 1871, 339 (Peking, China).—RIDGWAY, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 322, 323.—SHARPE, Cat. Birds Brit. Mus., i, 1874, 306 (Kamchatka).—BLAKISTON and PRYER, Ibis, 1878, 247 (Koshui, Japan).—BOLAU, Proc. Zool. Soc. London, 1892, 173 (crit.).—REICHENOW, Die Vögel, i, 1913, 398.

Haliaetus pelagica BONAPARTE, Consp. Gen. Av., i, 1850, 15.

Haliaëtos pelagica HOMEYER, Journ. für Orn., 1868, 248 (e. Siberia).—TACZANOWSKI, Journ. für Orn., 1876, 190 (Ussuri-land).

Haliaeetus pelagicus GRAY, Hand-list, 1, 1870, 17, No. 146.—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, xxii, 1870, 143.—HARTERT, Vög. pal. Fauna, ii, 1914, 1178 (monogr.); Nov. Zool., xxvii, 1920, 150 (Commander Islands).—PETERS, Check-list Birds of World, i, 1931, 258.—LA TOUCHE, Handb. Birds Eastern China, ii, 1932, 170 (Chili, China; one rec.; descr.).—BERGMAN, Kenntn. Nordostasiat. Vög., 1935, 99 (Kamchatka; spec.; plum.; habits).

Haliaecetus pelagicus pelagicus SWANN, Synopt. List Accip., pt. 3, 1920, 91.—YAMASHINA, Journ. für Orn., lxxix, 1931, 517 (Kurile Islands).—BERGMAN, Kenntn. Nordostasiat. Vög., 1935, 223 (Kurile Islands, spec.; habits).—STEGMANN, Faune U. R. S. S., Oiseaux, i, No. 5, Falconiformes, 1937, 143, 276 (crit.; descr.; Kamchatka; Okhotsk Sea; Sakhalin; Amurland; winters south to Riu-Kiu Islands and Japan).

Thalassaetus pelagicus GURNEY, Ibis, 1878, 452; List Diurn. Birds Prey, 1884, 58; Cat. Birds Prey, 1894, 23.—STEJNEGER, Naturen, 1884, 7, text fig. (Kamchatka).—MENZBIER, Bull. Brit. Orn. Club, xi, 1900, 4 (Yakutsk, e. Siberia).—CLARK, Proc. U. S. Nat. Mus., xxxviii, 1910, 57 (Unalaska Island,

Alaska, 1 seen, May 26, 1906, Petropaulski, Kamchatka; Korsakoff, Sakhalin).—Brooks, Bull. Mus. Comp. Zool., lix, 1915, 398 (Avatcha Bay, ne. Siberia, May 10).

Thalassoaetus pelagicus Dybowski, Bull. Soc. Zool. France, 1883, 351.—Stejneger, Proc. U. S. Nat. Mus., vi, 1883, 68; U. S. Nat. Mus. Bull. 29, 1885, 217 (Petropaulski and Bering Island, Kamchatka; crit.; meas., habits, etc.); Proc. U. S. Nat. Mus., x, 1887, 402 (Liu Kiu Islands, Dec. or Jan.); xxi, 1898, 286 (Kurile Islands).—Sharpe, Hand-list, i, 1899, 267.—Bangs, Proc. New England Zool. Club, iii, 1903, 95 (Liu Kiu Islands).—Allen, Bull. Amer. Mus. Nat. Hist., xxi, 1905, 243 (Gichiga, ne. Siberia).—Hanna, Auk, xxxvii, 1920, 250 (St. Paul Island, Pribilof group, Alaska, 1 spec., Dec. 15, 1917).—Oberholser, Auk, xxxvii, 1920, 280 (Pribilof Islands).—Gilbert, Condor, xxiv, 1922, 64 (Kodiak Island, Aug. 10, 1921).—Preble and McAtee, North Amer. Fauna, No. 46, 1923, 82 (St. Paul Island).—Friedmann, Journ. Washington Acad. Sci., xxv, 1935, 49 (bones; Kodiak Island).—Howard, Condor, xxxvii, 1935, 207, 208, in text.

Thallasoaëtus pelagicus American Ornithologists' Union, Check-list, ed. 4, 1931, 71.—Friedmann, Bull. Chicago Acad. Sci., Bull. 5, No. 3, 1935, 30 (Kodiak Island; casual).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 349 (life hist.).

Thallassoaëtus pelagicus Swann, Monogr. Birds Prey, ii, 1934, 181 (monogr.).—Swarth, Pacific Coast Avif. No. 22, 1934, 11, 13.

Thalassoaëtus pelagicus pelagicus Swann, Synop. Accip., pt. 3, 1922, 142.

Falco leucopterus Temminck, Planches Col., i, 1830, pl. 489 and text (Japan).

Falco imperator Kittlitz, Kupfert, Vög., i, 1832, 3 (Kamchatka).

Aquila ossifraga (not *Falco ossifraga* Brünnich, 1784) Kittlitz, Denkw., ii, 1858, 366, 406.

Thalassaëtus macrurus Menzbier, Bull. Brit. Orn. Club, xi, 1900, 4 (Yakutsk, e. Siberia).

Haliaeetus macrurus Hartert, Vög. pal. Fauna, ii, 1914, 1179 (monogr.).

Haliaëëtus pelagicus macrurus Swann, Synopt. List Accip., pt. 3, 1920, 91 (e. Siberia).

Genus HALIAEETUS Savigny

Haliaectus Savigny, Descr. Égypte, Hist. Nat., i, 1809, 68, 85. (Type, by monotypy, *H. nisus* Savigny=*Falco albicilla* Linnaeus.)

Haliaëtus (emendation) Vieillot, Nouv. Dict. Hist. Nat., xxiv, 1818, 101.

Haliaëtos (emendation) Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, 1826, 24.

Haliaethus (emendation) Lesson, Traité d'Orn., 1831, 654.

(?) *Cuncuma* Hodgson, Journ. Asiat. Soc. Bengal, vi, 1837, 367. (Type, by original designation, *Haliaeetus albipes* Hodgson=*Aquila leucorypha* Pallas.)

(?) *Cucuma* (emendation) Kaup, *in* Jardine's Contr. Orn., 1850, 74.

(?) *Blagrus* Blyth, Journ. Asiat. Soc. Bengal, xv, 1846 (1847), 369; Cat. Birds Mus. Asiat. Soc. Bengal, 1852, 30. (Type, by original designation, *Falco dimidiatus* Raffles=*Falco leucogaster* Gmelin.)

Haliœtus (emendation) Vieillot, Nouv. Dict. Hist. Nat., xxviii, 1819, 273.

Halioetus (emendation) Lesson, Actes Soc. Linn. Bordeaux, xii, No. 37, 1841, 18.

Halyætus (emendation) d'Orbigny and Lafresnaye, Mag. Zool., vii, 1837, Synop. Av., 3.

Haliactos (emendation) Lichtenstein, Syst. Verz., 1844, 3.

Pygargus (not *Pygargus* Koch, 1816) Forster, Synopt. Cat. Brit. Birds, 1817, 44. (Type, by monotypy, *P. vulturinus* Forster=*Falco albicilla* Linnaeus.)

Ossifraga Wood, Analyst, ii, No. 11, 1835, 305 (iii, 1836, 199; vi, 1837, 244; vii, 1837, 37). (Type, by original designation, *Vultur albicilla* Linnaeus.)

Aëtus Morris, *in* N. Wood's Naturalist, ii, No. 9, 1837, 123. (Types, *Aë. pygargus* Morris (= *Falco albicilla* Linnaeus) and *Aë. aquila* Morris (= *Falco chrysaetos* Linnaeus.)

(?) *Pontoaëtus* Kaup, Classif. Säugeth. und Vögel, 1844, 122. (Type, as designated by Sharpe, 1874, *Falco leucogaster* Gmelin.)

(?) *Pontaëtus* (emendation) Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261.

(?) *Pontoaëtos* (emendation) Hartlaub, Index Azara's Apunt., 1847, 1.

(?) *Pontaëtos* Rey, Syn. Eur. Brutvögel und Gäste, 1872, 255.

>*Haliaeetus* Hartert, Vög. pal. Fauna, ii, 1914, 1175.—Peters, Check-list Birds of World, i, 1931, 257 (includes *Thallasoaetus*).

Large and powerful "eagles" (wing about 500–712 mm.) with lower half of tarsus nude, the lower half of acrotarsium with several large transverse scutella; no web between basal phalanges of outer and middle toes; feathers of neck (all round) lanceolate, and tail (of 12 rectrices), slightly rounded.

Bill relatively rather large, somewhat inflated laterally, its depth at anterior margin of cere equal to about half the length of culmen, or slightly more; culmen (chord) equal to about half the length of tarsus, regularly and strongly decurved, the tip of maxilla forming a well-developed acute unguis; gonys about one-third as long as culmen, slightly but distinctly convex; maxillary tomium slightly but distinctly lobed or festooned a little anterior to lower anterior edge of cere, thence regularly concave to tip of unguis; mandibular tomium slightly but distinctly convex for anterior half (more or less), the tip of mandible obliquely truncate; anterior outline of the rather broad cere gently convex in front of nostril, slightly receding and concave below; nostril obliquely vertical, beveled off anteriorly, but not in contact with anterior edge of cere, situated above middle of cere; cere practically straight and horizontal on top.

Wing long and pointed, the longest primaries exceeding distal secondary by at least one-third the length of wing; third, fourth, or fifth primary longest, the second longer than seventh, the first longer than ninth; inner webs of five to six outer primaries abruptly and deeply emarginated. Tail more than half as long as wing, slightly rounded, the rectrices (12) broadly rounded at tips. Tarsus more than one-eighth as long as wing, robust, densely feathered for about upper half, except on planta tarsi, the middle portion of acrotarsium with several large transverse scutella, elsewhere covered with small roundish, somewhat granular, scales, these larger on upper part of planta tarsi; middle toe about two-thirds as long as tarsus; lateral toes much shorter, the outer decidedly longer than the inner, reaching to about middle of subterminal phalanx of middle toe; hallux about as long as inner toe or slightly shorter, rather stouter; upper surface of toes covered with large transverse scutella, their lower surface

roughly papillose or subspiculate; claws relatively large, strongly curved, graduated in size, broadly grooved or concave beneath, moderately acute, that of hallux (longest) decidedly longer than its digit, that of outer toe (smallest) about half as long; no trace of web between basal phalanges of outer and middle toes.

Plumage and coloration.—Plumage in general compact, the contour feathers distinctly outlined, those of head and neck (all around) distinctly lanceolate; primaries and rectrices rigid. Adults plain dusky, brown, the feathers with paler margins, the head and neck paler (sometimes immaculate white), the tail and its coverts white; bill and feet deep yellow, iris light yellow. Young dusky brown or blackish, including head, neck, and tail, more or less variegated with paler; bill blackish; feet pale yellowish; iris brown. Nestling plain sooty grayish.

Nidification.—Nest on trees or rocks, very bulky, composed of sticks, etc.; eggs (2–3) immaculate white.

Range.—Cosmopolitan, except for South America. (Six species; only two of which occur in North America.)

Type.—Haliaeetus albicilla (Linnaeus).

KEY TO THE AMERICAN SPECIES AND SUBSPECIES OF HALIAEETUS

a. Tail wholly or chiefly white.
b. Tail wholly white.
c. Head entirely white.
d. Size larger; wings of male over 570 mm., of female usually over 600 mm. (Alaska, Canada, northern parts of United States).
H. leucocephalus washingtoniensis, ad. (p. 489)
dd. Size smaller; wings of male under 570 mm., of female under 600 mm. (California to Virginia and southward).
H. leucocephalus leucocephalus, ad. (p. 483)
cc. Head brown like body, sometimes splashed with white.
d. Size larger; wings of male over 620 mm., of female 660 mm. or over (Greenland; once off Massachusetts).
H. albicilla groenlandica, ad. (p. 482)
dd. Size smaller; wings of male under 620 mm., of female under 660 mm. (N. Asia, Europe, Alaska)——**H. albicilla albicilla**, ad. (p. 475)
bb. Tail mottled with dark brown and white.
c. Body plumage with considerable amount of whitish.
H. leucocephalus and races, imm. (p. 484)
cc. Body plumage with isabelline or pale fulvous, not whitish, streaks.
H. albicilla and races, imm. (p. 476)
aa. Tail not white or with very little white.
b. General plumage very dark clove brown; remiges blackish brown.
H. leucocephalus and races, juv. (p. 484)
bb. General plumage ochraceous-brown to fulvous.
H. albicilla and races, juv. (p. 476)

HALIAEETUS ALBICILLA ALBICILLA (Linnaeus)

EURASIAN SEA EAGLE

Adult (sexes alike).—General color of head, body, and wings dark fulvous-brown to sepia; tail white; forehead, crown, occiput, and nape sepia with the feathers basally broadly edged and tipped with pale fulvous and with blackish shafts; the feathers of the occiput, nape, and sides of the neck lanceolate with correspondingly longer pale

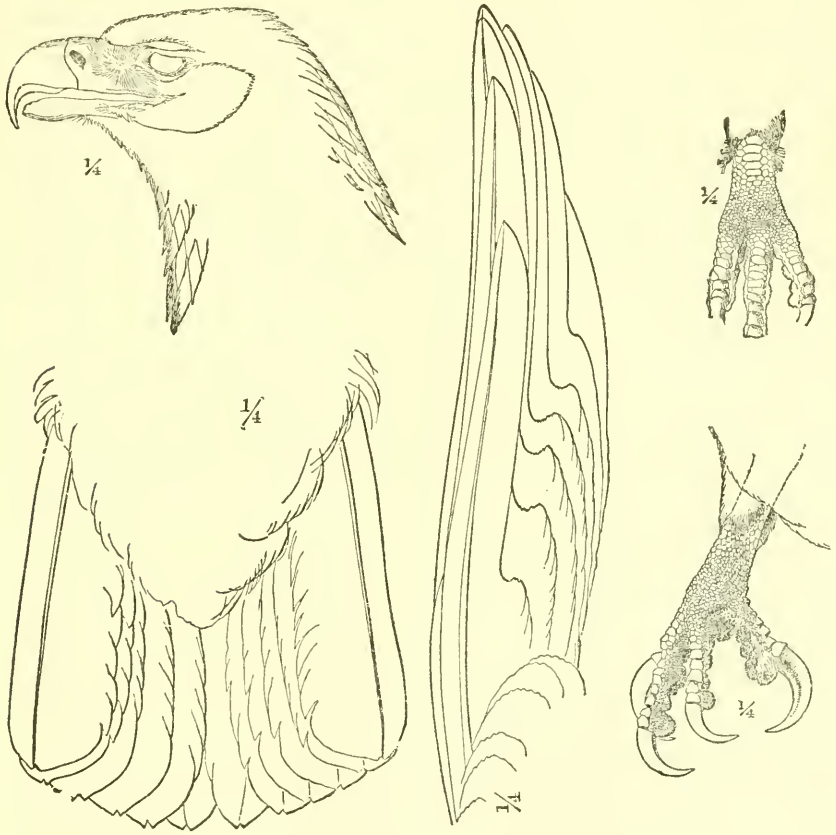

FIGURE 36.—*Haliaeetus leucocephalus.*

fulvous tips; interscapulars, upper back, rump, and upper wing coverts dusky Saccardo's umber with an olive tinge to olive-brown, the feathers broadly edged with pale fulvous to pale buffy brown, causing a definitely scalloped appearance, especially on the upper wing coverts; all the feathers of the body slightly lighter basally; remiges fuscous or dark sepia to fuscous-black, the outer primaries usually slightly darker than the secondaries, but not always so; the shafts yellowish white; outer webs of the inner primaries narrowly margined with pale

fulvous to buffy; outer six primaries sinuated on the inner webs, the second, third, fourth, and fifth from the outside also sinuated on the outer webs, the sixth only slightly so. The fifth primary the longest, the third next in length, then the sixth; first primary not, or only very slightly, exceeding the outer secondaries in length; upper tail coverts like the rump; tail white, sometimes slightly mottled with dull sepia at the base and with occasional spots toward the tips of the feathers; the older the bird the less mottling on the tail, which is pure white in birds 5 years or more in age; chin, throat, cheeks, auriculars, and breast similar to the crown and occiput, but with the shaft streaks slightly broader and more brownish, less blackish. Abdomen, thighs, sides, flanks, and upper tail coverts similar, but averaging slightly darker, the feathers with paler tips which give a thumb-marked appearance; the under tail coverts usually darker, more fuscous, than the rest of the upperparts; under wing coverts similar to the abdomen; tibial plumes extending two-thirds of the length of the tarsus; iris yellow; bill, cere, and feet yellow; claws horn black; in fairly young adults, that is, birds not more than 4 years old, but in adult plumage, the culmen sometimes somewhat dusky.

Immature (sexes alike).—Generally similar to the adult, but with the tail much mottled with brownish; the extent of the mottling decreasing with successive immature plumages; the upperparts and underparts of the body generally paler, more light cinnamon brown or isabelline and sometimes with a mixture of whitish, chiefly from the concealed portions of the feathers; the feathers of the top of the head generally with less pronounced fulvous tips than in the adults.[38]

Juvenal (sexes alike).—Feathers of the crown and occiput dark sepia to chocolate-brown, toward the base of the margins slightly more rufous and paler; the extreme bases of the feathers whitish; the general plumage darker than the immature birds, the scapulars and interscapulars with a slightly rufescent tinge; the tail feathers very extensively mottled with dark fuscous often to the point of almost excluding the white; feathers of the breast and upper abdomen ochraceous-brown to fulvous, often with large and much darker sepia tips; the rectrices fuscous to fuscous-black mottled extensively but rather minutely with white, the white chiefly concentrated toward the median part of the individual feathers; iris dark brown; bill dusky horn color; cere and feet yellowish; claws horn black.

Natal down.—Dusky cream color usually grayer on the upperparts, lighter on the head than on the body.

Adult male.—Wing 570–618 (597.5); tail 288–306 (294); culmen

[38] It is difficult to work out with certainty any definite constant change between successive immature plumages, but the relative age of the bird may be ascertained by the amount of white, or, conversely, the decrease in the mottling, on the tail.

from cere 49–57 (51.6); tarsus 93–108 (102); middle toe without claw 65–68 (66.5 mm.).[39]

Adult female.—Wing 622–659 (641.5); tail 310–325; culmen from cere 55.5–58 (56.4); tarsus 106–110; middle toe without claw 71–73 mm.[40]

Range.—Breeds in northern and eastern Europe from British Isles (apparently now extinct as a breeding bird), Denmark (formerly, as in the British Isles), to Scandinavia, and to all of Siberia east to the Kolyma area, and Kamchatka (Petropaulski), Ussuriland, Amurland, possibly the Kurile Islands; north to latitude 75° N., south to Mesopotamia and Persia, formerly to the Red Sea and lower Eygpt. Also breeds on Iceland, but not (or at least not now) on the Hebrides or Shetlands or Faroe Islands.

Winters from the breeding range, except, perhaps the more northern parts, southward occasionally as far as southern Europe, Mesopotamia, the Red Sea, Mongolia, China (Szechwan, Foochow, etc.), the Kurile Islands (Yetorofu, Uruppu, Ushishiru, Natsuwa, Onekotan, Shumishu), Korea, Japan (Yezo, Tsushima, etc.), and northern India (Kashmir). Casual on Bering Island and in Alaska (Unalaska Island, Aleutian Chain; Kodiak Island; Hoonah Island; Lung Island). It is possible that the young bird taken off Nantucket, Mass. (see under *groenlandica*) may have been a straggler from Iceland, in which case it would be of this form.[41]

Type locality.—"In Europa, Americas"; restricted type locality, Sweden.

Falco albicilla Linnaeus, Syst. Nat., ed. 10, i, 1758, 89, part (Sweden; based essentially on Fauna Suecica, 58, but cites *Aquila capite albo* Catesby, Carolina, i, 1, pl. 1, which=*H. leucocephalus*).—Brunnich, Orn. Bor., 1764, 3 (Norway).—Latham, Synop. Birds, Suppl., i, 1787, 281 (Scotland; Orkneys; Cumberland); Index Orn., i, 1790, 9.—Gmelin, Syst. Nat., i, pt. 1, 1788, 253.—Temminck, Cat. Syst., 1807, 10; Man. d'Orn., i, 1820, 49; iii, 1820, 6; Tabl. Meth., 1836, 3.—Shaw, Gen. Zool., vii, pt. 1, 1809, 79 (Europe; Iceland; Lapmark).—Faber, Prodr. Island Orn., 1822, 1 (Iceland).—Naumann, Vög. Deutschl., i, 1822, 224, pls. 12, 13, 14; Nachtr., 1853, 330, pl. 9, fig. 17.—Kittlitz, Kupfert., i, 1832, 4 pl. 2, fig. 2; Denkw., ii, 1858, 278.—Schlegel, Vög. Eur., 1839, pls. 25, 26.—Fritsch, Vög. Deutschl., 1839, 70, pl. 69.—Yarrell, Brit. Birds, i, 1843, 15.—Holm, Naturhist. Tidssk., ed. 2, ii, 1848, 507 (Faroe Islands).—Schalow, Journ. für Orn., 1891, 248 (Kuril Islands; "America").

[39] Very limited material examined from eastern Asia seemed to support (quite unexpectedly) the possibility that *brooksi* might prove to be separable. It is here kept together with typical *albicilla* since other workers with far ampler series have concluded that the supposed difference in size was not constant.

[40] Five specimens, three from India, Japan, and Bering Island, and two from Scandinavia (these two *ex* Schiöler, Danmarks Fugle, iii, 1931, 68.

[41] Four specimens, two from India and Korea, and two from Scandinavia (these two *ex* Schiøler, Danmarks Fugle, iii, 1931, 68.

Falco albicilla borealis Faber, Prodr. Island Orn., 1822, 1 (Iceland); Isis, 1827, 56.
Haliaëtus borealis Brehm, Naumannia, 1855, 267.
Vultur albicilla Linnaeus, Syst. Nat., ed. 12, i, 1766, 123 (Europe).—Kluck, Hist. Nat., ii, 1779, 304.
Haliaeetus albicilla Leach, Syst. Cat. Mam. Birds Brit. Mus., 1816, 9.—Lilford, Ibis, 1865, 170 (Spain).—Gray, Hand-list, i, 1869, 16, No. 144, part.—Saunders, Ibis, 1871, 60 (s. Spain).—Harting, Man. Brit. Birds, 1872, 3.—Stejneger, Naturen, 1884, 8 (Bering Island, Kamchatka); U. S. Nat. Mus. Bull. 29, 1885, 216 (Bering Island); Proc. U. S. Nat. Mus., xxi, 1898, 286 (Kuril Islands).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 351, part; ed. 3, 1910, 162, part.—Bendire, Life Hist. North Amer. Birds, 1892, 272, part.—Bishop, North Amer. Fauna, No. 19, 1900, 73 (Unalaska Island, Oct. 5, 1889, 1 spec. found dead).—Hartert, Vög. pal. Fauna, ii, Heft 3, 1914, 1176, part (monogr.); iii, Heft 4–5, 1922, 2207 (breeds in Mesopotamia).—Thayer and Bangs, Proc. New England Zool. Club, v, 1914, 33 (Kolyma River, e. Siberia, breeding).—Swann, Synopt. List Accip., pt. 3, 1920, 90, part.—Witherby et al., Handb. Brit. Birds, ii, pt. 10, 1921, 172 (descr.; habits; etc.).—Glegg, Ibis, 1924, 74 (Macedonia; breeding); 1931, 240 (Camargue, France); L'Oiseau, new ser., ii, 1932, 306 (Camargue and Little Camargue Islands, France).—Gengler, Verh. Orn. Ges. Bay, xvi, 1925, Sonderheft, 75, 277 (Bavaria); xvii, 1927, 160 (Steiger Forest, Bavaria).—Harrison, Ibis, 1925, 435 (Gulf of Ruphani, Macedonia).—Bianchi, Journ. für Orn., lxxiv, 1926, 456 (distr., n. Russia).—Heinroth, Vög. Mitteleurop., ii, 1926–27, 72 (devel. of young in captivity).—Long, Brit. Birds, xix, 1926, 254 (Essex).—Verwey, Ardea, xv, 1926, 53 (migr., Holland).—Boettticher, Verh. Orn. Ges. Bay., xvii, 1927, 544 (Bulgaria, stat.).—de Faillerets, Rev. Fr. d'Orn., xi, 1927, 244 (Charente-Inférieure, France).—Gordon, Brit. Birds, xxi, 1927, 96 (Aviemore, Invernessshire).—Laubmann, Verh. Orn. Ges. Bay., xvii, 1927, 362 (Ionian Islands).—Legendre, Rev. Franç. Orn., xi, 1927, 101 (La Sarthe, France).—Poll, Verh. Orn. Ges. Bay., xvii, 1927, 400 (lower Bavaria).—Bedford, Brit. Birds, xxi, 1928, 284 (Bedfordshire, England).—Brouwer and Haverschmidt, Ardea, xvii, 1928, 36 (migr.; Holland).—Lebeurier, Rev. Franç. Orn., xii, 1928, 82 (Morbihan, France).—LeDart, Rev. Franc Orn., xii, 1928, 346 (spec.; Ver-sur-Mer, Calvados, France).—Brouwer, Ardea, xviii, 1929, 28 (migr.; Holland, 1928).—Wigman, Ardea, xviii, 1929, 93 (between Deelan and Reemst, Holland).—Haverschmidt, Ardea, xix, 1930, 32 (migr.; Holland, 1929).—Rocard, L'Oiseau, xi, 1930, 214 (Noirmoutier Island, France).—Peters, Check-list Birds of World, i, 1931, 258, part.—Uttendorfer, Journ. für Orn., lxxix, 1931, 302, in text (food habits in Germany).—La Touche, Handb. Birds Eastern China, ii, pt. 2, 1932, 167 (China; descr.).—Lewis, Brit. Birds, xxv, 1932, 362 (Devon, England).—Parel, L'Oiseau, new ser., ii, 1932, 201, in text (spec.; Baie de Somme, France).—Witherby, Brit. Birds, xxv, 1932, 338 (Kent and Isle of Wight); xxvi, 1932, 58 (Isle of Mull).—Belopolski, Journ. für Orn., lxxxi, 1933, 421 (Anadyr region; Siberia).—Jourdain, Auk, 1, 1933, 202 (distr.); *in* Bent, U. S. Nat. Mus. Bull. 167, 1937, 315 (life hist.).—Knorr, Orn. Monatsb , xli, 1933, 58, in text (Rhein Province, Germany).—Reeve, Brit. Birds, xxvi, 1933, 365 (near Sleaford, Lincolnshire, England).—Swarth, Pacific Coast Avif., No. 22, 1934, 13 (nw. North America).—Taverner, Birds of Canada, 1934, 136 (Canada).—Bergman, Kenntn. Nordostasiat. Vögel, 1935, 99 (Kamchatka), 223 (Kuriles).—Friedmann, Chicago Acad. Sci. Bull. 5, No. 3, 1935, 29 (Kodiak Island; bones).—Eyerdam, Murrelet, xvii, 1936, 50 (e. Aleutian

Islands).—Stegmann, Journ. für Orn., lxxxiv, 1936, 91 (n. Baikal).—Mathews, Ibis, 1938, 329, in text (syn.).—Nice, Bird-Banding, ix, 1938, 58, in text (Germany; habits); xi, 1940, 176, in text (nw. Iceland).—Cottam and Knappen, Auk, lvi, 1939, 151, in text (Alaska; food habits).—Lack, Ibis, 1943, 9 (Orkney; breeds).—Cahn, Condor, xlix, 1947, 80 (Dutch Harbor area, Alaska; 1 rec.).

Haliaetus albicilla Cuvier, Règne Anim., i, 1817, 315; ed. 2, i, 1829, 236.—Brehm, Vög. Deutschl., i, 1831, fig. 11.—Gould, Birds Europe, 1837, pl. 10; Birds Great Brit., i, pt. 3, 1866, pl. 4, and text.—Macgillivray, Man. Brit. Orn., i, 1840, 41; Brit. Birds, iii, 1840, 231.—Kaup, Isis, 1847, 275 (monogr.), 368, 373, 380; *in* Jardine's Contr. Orn., 1850, 73.—Temminck and Schlegel, Fauna Japonica, Aves, 1847, 13.—Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 25 (England; Orkneys).—Bonaparte, Consp. Gen. Av., i, 1850, 15; Rev. Mag. Zool., vi, 1854, 531.—Strickland, Orn. Syn., i, 1855, 48.—Brewer, North Amer. Ool., i, 1857, 47.—Fritsch, Vög. Eur., 1858, pl. 7, figs. 4, 5.—Schrenck, Reis. Amurland, i, 1860, 223 (Amurland.)—Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 11 (monogr.); No. 36, livr. 10, 1873, 117.—Newton, Ooth. Wolleyana, 1864, 245; ed. Yarrell's Brit. Birds, 1871, 25.—Elliot, New and Unfig. North Amer. Birds, ii, pt. 1, 1866, part, pl. 35, and text.—Degland and Gerbe, Orn. Eur., i, 1867, 39.—Swinhoe, Proc. Zool. Soc. London, 1871, 339 (China n. of Yangtze River).—Godman, Ibis, 1872, 166 (Canary Islands).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 68 (Europe).—Dresser, Hist. Birds Europe, v, pt. 37, 1875, 551, pls. 347, 348.—Seebohm, Ibis, 1876, 110 (lower Petchora River, Russia); 1878, 322 (Yenisei River, Siberia); 1882, 371 (Archangel, Russia).—Blakiston, Ibis, 1878, 247 (Yezo, Japan; breeding); Chrysanthemum, 1882, 427; Amend. List Birds Japan, 1884, 19, 66.—Irby, Ibis, 1879, 343 (Straits Gibraltar; descr. nest).—Gurney, List Diurn. Birds Prey, 1884, 58, part; Cat. Birds Prey, 1894, 23, part.—Dixon, Ibis, 1885, 79 (St. Kilda).—Whitehead, Ibis, 1885, 25 (Corsica).—Sclater and Carter, Ibis, 1886, 48 (Iceland; descr. eggs).—Taczanowski, Proc. Zool. Soc. London, 1888, 453 (Korea).—Blagg, Ibis, 1893, 353 (Shetlands).—Pearson and Bidwell, Ibis, 1894, 232 (n. Norway and Lofoden Islands, breeding).—Rickett, Ibis, 1894, 224 (Foochow, China).—Pearson, Ibis, 1896, 220 (Novaya Zemlya); 1898, 195 (Dolgo Bay, Waigato, ne. Russia; Skaarö, Norway; habits).—Popham, Ibis, 1898, 508 (Yenesei River, 69° 40′ N.).—Sharpe, Hand-list, i, 1899, 267, part (Europe; n. Asia, part).—Slater, Man. Birds Iceland, 1901, 28 (habits; descr. eggs; etc.).—Pogge, Journ. für Orn., 1902, 370 (ne. China).—Hartert et al., Handb. Brit. Birds, 1912, 116.—Reichenow, Die Vögel, i, 1913, 398.—British Ornithologists' Union, List Brit. Birds, ed. 2, 1915, 142.—Bannerman, Ibis, 1920, 525 (Canaries, rare vis.).—Greschik, Aquila, xxviii, 1921, 53, in text (Hungary).—Kuroda, Ibis, 1922, 79 (Tsushima, Japan).—Nagy, Aquila, xxviii, 1922, 81, in text (Pancsova, Hungary).—Szomjas, Aquila, xxviii, 1922, 183, 213, in text (Hortobágy-Puszta, Hungary); xxix, 1923, 188, in text (Hortobágy, Hungary).—Tarján, Aquila, xxviii, 1922, 80, in text (Hungary); xxix, 1923, 166, in text (Hungary), 189, in text (Hortobágy, Hungary); xxxiv–xxxv, 1924, 424, in text (Hortobágy-Puszta, Hungary); xxxvi–xxxvii, 1931, 334, in text (Hortobágy-Puszta, Hungary).—Ramsay, Guide to Birds Europe and North Africa, 1923, 199 (descr.; range in Europe and North Africa).—Oomen, Ardea, xiii, 1924, 84 (Corsica).—Schenk, Aquila, xxx–xxxi, 1924, 149, in table (banding records in Hungary); xxxii–xxxiii, 1926, 34 (banding records, Hungary); xxxiv–xxxv, 1929, 31, 45, 77 (banding;

Hungary, 1926–27); xxxvi–xxxvii, 1931, 153 (banding; Hungary; 1928–1930).—Warga, Aquila, xxx–xxxi, 1924, 311, 334, in text (tax.).—Zergenyi, Aquila, xxx–xxxi, 1924, 295, in text (Hungary), 317, in text (Alibunar Swamp, Hungary).—Grote, Falco (Sonderheft), 1925, 174 (Yenisei region, Siberia).—Kayser, Verh. Orn. Ges. Bay, xvi, 1925, 241 (Sagan district, Germany).—Nathusius, Journ. für Orn., lxxiii, 1925, 543 (n. of Magdeburg, Germany).—Peitzmeier, Journ. für Orn., lxxiii, 1925, 558 (upper Ems district, Germany).—von Jordans, Journ. für Orn., lxxiii, 1925, 198 (Balearic Islands, not breeding).—Robinson, Brit. Birds, xix, 1926, 287 (Scilly Islands).—Spranger, Verh. Orn. Ges. Bay, xvii, 1926, 26 (Deggendorf, Germany).—Hesse, Verh. Orn. Ges. Bay., xviii, 1927, 495 (Mark Brandenburg, Germany).—Engelmann, Die Raubvögel Europas, 1928, 174 (nat. hist.; econ.; falconry).—Rey-Jouvain, Rev. Franç. Orn., xii, 1928, 16 (Corsica).—Siewert, Journ. für Orn., lxxvi, 1928, 204, in text (life hist.; monogr.).—Arrigoni degli Oddi, Orn. Italiana, 1929, 432 (descr.; distr. in Italy).—Reboussin, L'Oiseau, x, 1929, 659 (Loir-et-Cher, France).—Stegmann, Journ. für Orn., 1930, 432 (Amurland); 1931, 214 (Siberian-Manchurian boundary).—Caldwell and Caldwell, South China Birds, 1931, 255 (s. China; Kuliang, near Foochow; breeds).—Schiøler, Danmarks Fügle, iii, 1931, 64.—Wüst, Verh. Orn. Ges. Bay., xix, 1931, 241 (habits, near Munich, Germany).—Aharoni, Journ. für Orn., lxxx, 1932, 422 (Egypt and Asia Minor; corr.).—Kozlova, Ibis, 1932, 425 (Tola River, Ulan-bator, Lake Orok-nor, n. Mongolia; breeds on s. shore of Lake Baikal).—Groebbels, Der Vögel, i, 1932, 75, in text (air sacs), 166, in text (transpiration physiology), 171, in table, 177 (heart-body weight ratios), 286, in text (food), 382, in text (feeding habits), 620 (body weight), 647 (longevity); ii, 1937, 105, in text (sex ratios), 170 (breeding data), 204 (uses leaves as nest lining), 221, 222, in text (nesting site), 231, in text (nest in use for 20 years), 232, in text (egg of peregrine in eagle's nest), 244, in text (incubation), 299, in text (egg color).—Steinfatt, Orn. Monatsb., xl, 1932, 36 (migr.; Bosphorus); Journ. für Orn., lxxx, 1932, 371 (migr.; Bosphorus).—Uttendörfer, Journ. für Orn., lxxx, 1932, 289, in text (food habits in Germany).—Horring, Danmarks Fauna, Fügle, iii, 1934, 172 (monogr.; Denmark).—Nice, Bird-Banding, vi, 1935, 74, in text (life hist.).—Blair, Ibis, 1936, 289 (Norway; East Finmark).—Thorpe, Cotton, and Holmes, Ibis, 1936, 570 (Yugoslavia, status).—Pease, Ibis, 1938, 53 (Finland; rare).

Haliaetos albicilla Bonaparte, Geogr. and Comp. List, 1838, 3.—Keyserling and Blasius, Wirbelth. Eur., 1840, xxx, 139.—Homeyer, Journ. für Orn., 1868, 248 (e. Siberia).—Droste, Journ. für Orn., 1869, 107 (Faroe Islands).—Taczanowski, Journ. für Orn., xx, 1872, 346 (e. Siberia, eggs); xxii, 1874, 326 (e. Siberia); xxiii, 1875, 242 (e. Asia); xxiv, 1876, 190 (Ussuri Land); Bull. Soc. Zool. France, 1876, 120.—Bolau, Journ. für Orn., 1880, 114 (coast e. Siberia).—Dörries, Journ. für Orn., 1888, 59 (e. Siberia).

Haliaëtus (*Haliaëtus*) *albicilla* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261 (Europe).

Haliaetus albicillus Sharpe, Cat. Birds Brit. Mus., i, 1874, 302, in part (Orkneys; England; Iceland; Kamchatka; China; Japan).

Haliaeetus albicillus Allen, Bull. Amer. Mus. Nat. Hist., xxi, 1905, 244 (Gichiga and Marcova, ne. Siberia; breeding).

Haliaëtus [=*Haliaeëtus*] *albicilla* Pleske, Mem. Boston Soc. Nat. Hist., vi, No. 3, 1928, 306 (Kolyma; Bennett Island?).

Haliaeëtus H. albicilla Gladstone, Brit. Birds, xxv, 1931, 202 (Buckinghamshire).

Halaeetus albicilla Nice, Bird-Banding, ix, 1938, 164, in text.

Haliaeetus albicilla albicilla SWANN, Synop. Accip., 1922, 140.—YAMASHINA, Journ. für Orn., lxxix, 1931, 516 (Kurile Islands).—BERGMAN, Kenntn. Nordostastiat. Vögel, 1935, 222 (Kurile Islands; spec.; crit.).—STEGMANN, Faune URSS, Oiseaux, i, No. 5, Falconiformes, 1937, 139, 275, part (descr.; distr.; crit.).

Haliaaëtus albicilla albicilla STRESEMANN, Journ. für Orn., lxxvi, 1928, 404 (Elburs Mountains, Caspian Sea, Persia).—STEGMANN, Faune URSS, Oiseaux, i, No. 5, Falconiformes, 1937, 275, part (distr.; descr.; crit.).

Haliaetus albicilla albicilla BRITISH ORNITHOLOGISTS' UNION, Ibis, 1932, 96 (crit.).—TICEHURST, Birds Suffolk, 1932, 222 (status, etc., in Suffolk, England).

Haliaëtus albicilla brooksi CLARK, Proc. U. S. Nat. Mus., xxxviii, 1910, 57 (Petropaulski, Kamchatka; near Korsakoff, Sakhalin Island).

Haliaeetus albicilla brooksi BROOKS, Bull. Mus. Comp. Zool., lix, 1915, 398 (Cape Shipunski, ne. Siberia, May 22).—OBERHOLSER, Auk, xxxv, 1918, 207 (Alaska); xxxvi, 1919, 82 (crit.; Unalaska Island; e. Asia, incl. Commander Islands and s. to India); Journ. Washington Acad. Sci., ix, 1919, 555, in text (e. Asia; Aleutian Islands).

Aquila albicilla PALLAS, Zoogr. Rosso-Asiat., i, 1826, 345.—KUHL, Beitr. Zool., pt. i, 1820, 76 (anatomy).—SELYS-LONGCHAMPS, Faune Belg., 1842, 53.—MIDDENDORF, Sibir. Reis., Zool., 1851, 125.

Ossifraga albicilla MATHEWS, Ibis, 1938, 329, text (syn.).

Falco ossifragus BRÜNNICH, Orn. Bor., 1764, 3.—LINNAEUS, Syst. Nat. ed. 12, i, 1766, 124.—LATHAM, Synop. Birds, Suppl., i, 1787, 281 (England; Scotland; Ireland); Index Orn., i, 1790, 12.—GMELIN, Syst. Nat., i, pt. 1, 1788, 255.—DAUDIN, Traité d'Orn., ii, 1800, 64.—TEMMINCK, Cat. Syst., 1807, 8.—SHAW, Gen. Zool., vii, pt. 1, 1809, 81, part, pl. 18 (Europe; "North America"; crit.).—VIEILLOT, Nouv. Dict. Hist. Nat., xxiv, 1818, 22.

Falco ossifraga BRÜNNICH, Orn. Bor., 1764, 3.—BODDAERT, Tabl. Pl. Enl., 1783, 7 (Pl. Enl., pl. 112).

Aquila ossifraga KUHL, Beitr. Zool., pt. 1, 1820, 60, pl. 4, figs. 1–3; pl. 5, fig. 1.—PALLAS, Rosso-Asiat., i, 1826, 348, part.

Falco melanaëtus GMELIN, Syst. Nat., i, pt. 1, 1788, 254.

Falco albicaudus GMELIN, Syst. Nat., i, pt. 1, 1788, 258.

Falco hinnularius LATHAM, Index Orn., i, 1790, 15; Gen. Hist. Birds, i, 1821, 47 b.—SHAW, Gen. Zool., vi, 1809, 80.

Falco pygargus DAUDIN, Traité d'Orn., ii, 1800, 62, part.

Haliacëtus nisus SAVIGNY, Descr. Égypte, pt. 1, 1809, 86.

Halioetus nisus VIEILLOT, Nouv. Dict. Hist. Nat., xxviii, 1819, 273; Orn. Franç., 1825, 10, pl. 5, figs. 1, 2.—LESSON, Traité d'Orn., 1831, 40, pl, 8, fig. 2.—ROUX, Orn. Prov., i, 1825, 16, pls. 9, 10.

Aquila leucocephala (not *Falco leucocephalus* Linnaeus) MEYER and WOLF, Taschenb. deutschl. Vög., 1810, 16, pl. 4.

Haliaëtus islandicus BREHM, Naumannia, 1855, 267 (Iceland).

Haliaëtus cinereus BREHM, Naumannia, 1855, 267.

Haliaëtus funereus BREHM, Naumannia, 1855, 267.

Haliaëtos funereus HARTERT, Nov. Zool., xxv, 1918, 45 (type in Brehm coll.=*H. albicilla*).

Haliaëtus brooksi HUME, Ibis, 1870, 438 (upper India).—HUME, Scrap Book, pt. 1, No. 2, 1870, 255, in text (between Mynpooree and Etawah, India).

Haliaetus leucocephalus (not Linnaeus 1776) DALGLEISH, Bull. Nuttall Orn. Club, v, 1880, 143 (Sweden).—TOLL, Die Russ. Polarf. der "Sarja," 1909, 591 (Bennett Island).

HALIAEETUS ALBICILLA GROENLANDICA Brehm

GREENLAND SEA EAGLE

Adult (sexes alike).—Similar to the adult of *Haliaeetus albicilla albicilla*, but larger, and general coloration averaging slightly darker and slightly more brownish, less grayish.

Immature (sexes alike).—Similar to the corresponding plumage of *Haliaeetus albicilla albicilla*, but generally darker, and when mixed with white on the upperparts, the white more pronounced by virtue of its greater contrast with darker brown parts of the plumage.

Juvenal (sexes alike).—Similar to that of *Haliaeetus albicilla albicilla*, but generally slightly darker.[42]

Natal down.—Dusky grayish brown.

Adult male.—Wing 624–652 (637.1); culmen from cere 51–60 (55.2); tarsus 100–104 (101.8 mm.).[43]

Adult female.—Wing 660–717 (682.2); culmen from cere 58–65 (61.4); tarsus 104–107 (105.5 mm.).[44]

Range.—Breeds in Greenland, where it is found chiefly on the western coast. Possibly also, but rarely, on Baffin Island (Kingwah Fjord, American Harbor, Pangnirtung). Accidental off the coast of Massachusetts (off Nantucket Light Ship, November 14, 1914).[45]

Type locality.—Greenland.

Vultur albicilla (not *Falco albicilla* Linnaeus, 1758, *Vultur albicilla* Linnaeus, 1766) FABRICIUS, Fauna Groenl., 1780, 53.

Falco albicilla SHAW, Gen. Zool., vii, pt. 1,1809, 79, part (Greenland).

Aquila albicilla HOLBØLL, Naturhist. Tidsskr., iv, 1843, 384 (Greenland).

Haliaetus albicilla REINHARDT, Journ. für Orn., 1854, 438 (Greenland); Ibis, 1861, 4 (s. Greenland, res. and very common; n. Greenland in summer).—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, 1855, 283 (Greenland); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 43, part (Greenland).—BREWER, North Amer. Ool., i, 1857, 47, part (Greenland).—BAIRD, Cat. North Amer. Birds, 1859, No. 42.—ELLIOT, New and Unfig. North Amer. Birds, ii, pt. 1, 1866, pl. 35, and text, part.—RIDGWAY, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 324, part (Greenland).—KUMLIEN, U. S. Nat. Mus. Bull. 15, 1879, 82 (American Harbor; Kingwah Fjord, s. Baffinland; breeding).—COUES, Check List North Amer. Birds, ed. 2, 1882, No. 533; Key North Amer. Birds, ed. 2, 1884, 555, part (Greenland).—GURNEY, List Diurn. Birds Prey, 1884, 58, part; Cat. Birds Prey, 1894, 23, part.—CHAM-

[42] The material seen of this form is insufficient to form the basis of any definite descriptions; the facts presented above are largely taken from Schiøler's work on the birds of Denmark.

[43] Fifteen specimens; data all from Schiøler, Danmarks Fugle, iii, 1931, 83; none seen by the present author.

[44] Eleven specimens; data all from Schiøler, Danmarks Fugle, iii, 1931, 83. Only one bird, unsexed, but probably a female, seen by the present author: wing 660, tail 310, culmen from cere 65; tarsus 110; middle toe without claw 80 mm.

[45] There is a bare possibility that this Nantucket record may refer to the typical race, *Haliaeetus albicilla albicilla*, which breeds as far west as Iceland.

BERLAIN, Auk, vii, 1889, 291 (s. Greenland, common res.).—SCHALOW, Journ. für Orn., 1895, 473 (w. Greenland).—WINGE, Grønlands Fügle, 1898, 256.—SHARPE, Hand-list, i, 1899, 267, part.—BERTELSEN, Fugelene i Umánaq. Distrikt, 1921, 193.—HELMS, Medd. Grønland, lviii, 1926, 259 (habits, etc.; Angmagsalik, Greenland).—BAKER, Fauna Brit. India, Birds, ed. 2, v, 1928, 110, part (Greenland).—AUSTIN, Mem. Nuttall Orn. Club, No, 7, 1932, 64 (hypothetical; Newfoundland Labrador).

? *Haliaëtus albicillus* SCLATER, Proc. Zool. Soc. London, 1863, 251 (Nova Scotia and Newfoundland).

Haliaetus albicilla GRAY, Hand-list, i, 1869, 16, No. 144, part (Greenland).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 195; Nom. North Amer. Birds, 1881, No. 452.—AMERICAN ORNITHOLOGISTS' UNION, Check-list, 1886, and ed. 2, 1895, No. 351, part; ed. 3, 1910, 162, part; ed. 4, 1931, 71.—HAGERUP, Birds Greenland, 1891, 23, 56.—BENDIRE, Life Hist. North Amer. Birds, i, 1892, 272, part (Greenland).—HARTERT, Vög. pal. Fauna, ii, 1914, 1176, part.—SWANN, Synopt. List Accip., pt. 3, 1920, 90, part (Greenland).—WITHERBY, ET AL., Practical Handb. Brit. Birds, ii, pt. 10, 1921, 172, part (Greenland).—OBERHOLSER, Auk, xl, 1923, 680 (nomencl.).—FORBUSH, Birds Massachusetts and Other New England States, ii, 1927, 148 (descr.; New England).—HANTSZCH, Can. Field Nat., xlii, 1928, 17 (Cumberland Sound: recorded by Kumlien in 1877 and 1878).—SOPER, Nat. Mus. Canada Bull. 53, 1928, 106 (seen at Pangnirtung, s. Baffin Island).—PETERS, Check-list Birds of World, i, 1931, 258, part.—SUTTON, Mem. Carnegie Mus., xiii, 1932, 82.—JOURDAIN, Auk, l, 1933, 202 (crit. of American records).—TAVERNER, Canada's Eastern Arctic, 1934, 119, in text (sight rec.; nesting at Kingua Fiord, Cumberland Sound).

Haliaetus albicillus SHARPE, Cat. Birds Brit. Mus., i, 1874, 302, part (Greenland).

Haliaëtus albicilla albicilla STEGMANN, Faune U. R. S. S., Oiseaux, i, No. 5, 1937, 139, 275, part (crit; descr.; distr.).

Aquila Groenlandica BREHM, Ornis, ii, 1826, 18; Isis, xviii, 1826, 194, in text (nomen nudum); xix, 1826, 928.

Haliaetos groenlandicus BREHM, Isis, 1828, 1269 (nomen nudum!); Handb. Naturg. Vög. Deutschl., 1831, 16.

Haliaëtus albicilla a. [*Haliaëtus*] *groenlandicus* BREHM, Naumannia, 1855, 267.

Haliaëtus albicilla groenlandicus SWANN, Synop. Accip., pt. 3, 1922, 141.—OBERHOLSER, Auk, xl, 1923, 680.—JOURDAIN, *in* Bent, U. S. Nat. Mus. Bull. 167, 1937, 316 (meas.)—WITHERBY ET AL., Handb. Brit. Birds, iii, 1939, 95, in text (Greenland).

Haliaëtus albicilla groenlandicus NICHOLSON, Ibis, 1930, 313 (Greenland).—SCHIØLER, Danmarks Fügle, iii, 1931, 79 (monogr.).

Aquila ossifraga (not *Falco ossifraga* Brünnich, 1764) HOLBØLL, Naturh. Tidsskr., iv, 1843, 385 (Greenland).

HALIAEETUS LEUCOCEPHALUS LEUCOCEPHALUS (Linnaeus)

SOUTHERN BALD EAGLE

Adult (sexes alike in coloration).—Entire head, nape, chin, throat, upper and under tail coverts, and tail white, often with a pale buffy or creamy tinge; scapulars, interscapulars, back, rump, upper wing coverts, remiges, breast, abdomen, sides, flanks, thighs, and under wing coverts dark brownish, varying from fuscous to chaetura drab and even fuscous-black on the upperparts of the body and the remiges

to dusky sepia on the underparts of the body, the upperparts generally blacker, the underparts more rufescent, brownish; scapulars; interscapulars, under wing coverts and feathers of the breast and abdomen narrowly edged with fulvous white to pale hair brown, the edgings most pronounced, palest, and broadest on the upper wing coverts; the six outermost primaries emarginated on their inner webs, fourth (from the outside) the longest, then the third, fifth, and second; tail slightly graduated, the difference in length between the lateral and median rectrices about the same as the depth of bill at the base; iris pale chrome yellow; orbits, cere, bill and feet deep dull cadmium; claws black.

Subadult (sexes alike).—Similar to the adult, but the head streaked, or at least the feathers tipped, with fuscous to fuscous-black; tail feathers also mottled or blotched with dark fuscous; abdomen and to a lesser extent the breast and interscapulars blotched with creamy to white, this light color predominating basally on these feathers and often showing through. The amount of white on the underparts is very variable. In some individuals there is almost more whitish than dark brownish color.[46]

Immature (sexes alike).—Similar to the subadult, but the white in the rectrices restricted to a mottled area on the inner webs of the lateral feathers and to a median streak on the central pair; head with no white, but merely the brown feathers tipped with tawny-fulvous; the feathers of the body both above and below basally whitish, this color often showing through in variable amounts, especially on the underparts; the cheeks, auriculars, and sides of the neck generally without pale fulvous or tawny tips forming a broad dark brownish band in contrast to the lighter dorsal area.

Juvenal (sexes alike).—Entire head, body, and wings very dark fuscous to fuscous-black, the feathers basally paler fulvous to whitish, but little of the basal color showing through; tail like the rest of the body, but mottled with dirty fulvous-white along the inner webs of the lateral rectrices and to a limited extent along both webs of the median pair, this light mottling more pronounced on the under sides of the feathers than on the upper sides; under tail coverts dirty fulvous-white to whitish broadly tipped with dark fuscous or fuscous-black; feathers of the abdomen often with a sepia tinge; under wing coverts whitish with dark fuscous broad shaft streaks and washed with dusky fulvous terminally; iris pale yellowish gray; cere grayish, tinged with yellow; bill brownish horn color; feet clear lemon yellow.

[46] An extreme variant of this sort is the very whitish bird collected by Stejneger on Bering Island and subsequently described by Ridgway as a new species, *Haliaeëtus hypoleucus*. This has currently been treated as a synonym of the gray sea eagle, *Haliaëtus albicilla*, but the size and general proportions of the specimen point more to its being an aberrant bald eagle.

Natal down.—Smoke gray above becoming slightly paler on the head and underparts and almost white on the chin and upper throat. This is replaced later by dark hair brown to dusky drab down which is uniform all over the body.

Adult male.—Wing 515–545 (529.2); tail 232–264 (248.5); culmen from cere 49–52 (49.8); tarsus 95–97 (96.0); middle toe without claw 60–63 (61.5 mm.).[47]

Adult female.—Wing 548–588 (576.5); tail 247–286 (271.2); culmen from cere 30–35 (32.7); tarsus 101–107 (103); middle toe without claw 66–77 (71.8 mm.).[48]

Range.—Resident from northern California (Mount Lassen area), southern Nevada, New Mexico, Oklahoma, southern Iowa, southern Illinois, western Kentucky, Tennessee, the Carolinas, and southeastern Virginia south to Florida as far as Key West, the Gulf coast, southern Texas (Corpus Christi, Leona, Atacosa Mountains, Bellville, Houston, San Angelo), New Mexico (upper Pecos River, San Miguel County; Zuñi), Arizona (Apache, Fort Whipple, Salt River), and Baja California (San Francisco, Espíritu Santo, Santa Margarita, Cedros, Todos Santos, Los Coronados, and Carmen Islands; Guadaloupe Cañon; Hardy River; Laguna Hanson).

After breeding wanders northward to northern Illinois, southern Michigan, New York, Connecticut, Maine, New Brunswick, Nova Scotia, Prince Edward Island, and southern Quebec. This makes allocation of literature records less certain than one might wish.

Type locality.—Carolina (ex Catesby).

Falco leucocephalus Linnaeus, Syst. Nat., ed. 12, i, 1766, 124 (America, that is, South Carolina; based on *Aquila capite albo*, the *Bald Eagle*, Catesby, Nat. Hist. Carolina, i, 1731, 1, pl. 1; *Aquila leucocephalos* Brisson, Orn., i, 423).—Boddaert, Tabl. Pl. Enl., 1783, 25 (Pl. Enl., pl. 411).—Gmelin, Syst. Nat., i, pt. 1, 1788, 255.—Latham, Index Orn., i, 1790, 11.—Shaw, Gen. Zool., vii, pt. 1, 1809, 78.—Wilson, Amer. Orn., iv, 1811, 89, pl. 36.—Ord, ed. Wilson's Amer. Orn., ix, 1814, 129.—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 344; Obs. Wilson's Amer. Orn., 1826 [5]; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 26; Contr. Maclurian Lyc., i, 1827, 10.—Audubon, Orn. Biogr., Philadelphia ed., i, 1831, 160, pl. 31; ii, 1834, 160, pl. 126; v, 1839, 354.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 72.

Aquila leucocephala Vieillot, Ois. Amer. Sept., i, 1807, 27, pl. 3.

Vultur leucocephalus Temminck, Cat. Syst., 1807, 6, part.

Haliaeetus leucocephalus Savigny, Descr. Égypte, Ois., 1809, 257.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 13.—Gray, Hand-list, i, 1869, 16, No. 145, part.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 143; Proc. U. S. Nat. Mus., iii, 1880, 44; Nom. North Amer. Birds, 1881, No. 451, part; Man. North Amer. Birds, 1887, 243, part; Orn. Illinois, i, 1889, 485.—Coues, Bull. Nuttall Orn. Club, v, 1880, 99.—American Ornithologists' Union,

[47] Sixteen specimens from Georgia, Florida, and Baja California.

[48] Eleven specimens from Georgia, Florida, Louisiana, and Baja California.

Check-list, 1886, and ed. 2, 1895, No. 352, part; ed. 3, 1910, 162.—Blake, Auk, iv, 1887, 329 (Santa Cruz Island, Calif.; breeding).—Byrant, Proc. California Acad. Sci., ser. 2, 1889, 281 (Estero and Santa Margarita Island, Lower California; breeding).—Goss, Hist. Birds Kansas, 1891, 275 (Kansas; rare; habits; descr.).—Bendire, Life Hist. North Amer. Birds, i, 1892, 274, part, pl. 9, fig. 7.—Scott, Auk, ix, 1892, 212 (Calloosahatchie River, Fla.; breeding).—Fisher, Hawks and Owls United States, 1893, 97, pl. 14, part.—McGregor, Pacific Coast Avif., No. 2, 1901, 6 (Santa Cruz County, Calif.).—Brewster, Bull. Mus. Comp. Zool., xli, No. 1, 1902, 88 (Espíritu Santo Island and Gulf coast opposite Carmen Island, Lower California; breeding).—Bailey, Auk, xxi, 1904, 353 (upper Pecos River, N. Mex., 8,000 feet), 446 (Pecos Mountains, San Miguel County, N. Mex.; 8,000 ft.).—Stockard, Auk, xxii, 1905, 152 (Mississippi; breeding habits).—Oberholser, U. S. Biol. Surv. Bull. 27, 1906, 6, pl. 1, part (habits, range, food, etc.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 253, part (Iowa range).—Widmann, Birds Missouri, 1907, 100 (once abundant, now rare; breeding).—Stephens, Condor, xxiii, 1921, 96 (Coronados Islands, 1 spec., Mar. 1921).—Pemberton, Condor, xxx, 1928, 147 (Santa Rosa Island).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea); Auk, lvii, 1940, 529, in text (preys on geese).—Bailey and Wright, Wils. Bull., xliii, 1931, 203 (s. Louisiana).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (eats snakes).—Howard and Miller, Condor, xxxv, 1933, 16 (bones; Organ Mountains, N. Mex.).—Howard and Dodson, Condor, xxxv, 1933, 235, in text (Point Mugu, Calif.; shell mound remains).—Pierce, Condor, xxxv, 1933, 202, in text (Big Bear Valley, Calif.; seen).—Dale, Condor, xxxviii, 1936, 209, in text (Sacramento Valley, Calif.; econ. status).—Dixon and Bond, Condor, xxxix, 1937, 97, in text (Tule Lake, Calif.; nesting).—Imler, Condor, xxxix, 1937, in text (Kansas; food habits).—Reimann, Auk, lv, 1938, 524, in text (Monroe County, Fla.; food).—Bond, Condor, xli, 1939, 56, in text (Tule Lake, Calif.; food).—Hargrave, Condor, xli, 1939, 122, in text (Roosevelt Lake, Ariz.; 1 rec.), 207, 209, in text (Flagstaff, Ariz.; prehistoric bones).—Monson, Condor, xli, 1939, 167, in text (Long Lake, N. Mex.; 1 rec.).—Engels, Auk, lviii, 1941, 63, 64, in text (skeletal ratios).—Howell, Auk, lviii, 1941, 402 (Florida; nesting).—Monroe and Mengel, Wils. Bull., liii, 1941, 196 (Ballard County, Ky.; nest.).—Bryant, Condor, xliv, 1942, 41, in text (n. Arizona desert).—Grater, Condor, xliv, 1942, 75, in text (Bryce Canyon National Park).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas; winter).—Allan and Sime, Wils. Bull., lv, 1943, 34 (Texas Panhandle; only 1 seen but reported as not unusual).—Baldwin, Condor, xlvi, 1944, 206, in text (Boulder Dam, Nev.).—Davis, Auk, lxii, 1945, 634 (Washington, D. C., nesting in zoo).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 39 ("Navaho Country," se. Utah and ne. Arizona; rare bird; probably only a vis.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Rett, Condor, xlix, 1947, 166 (San Nicolas Island, Calif.; nesting).

Haliaetus leucocephalus Lesson, Traité d'Orn., 1831, 40, part.—Audubon, Synopsis, 1839, 10, part; Birds Amer., 8vo ed., i, 1840, 57, pl. 14, part.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 74, part.—Kaup, Isis, 1847, 274 (monogr.), 368, 373; *in* Jardine's Contr. Orn., 1850, 73.—Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 26.—Bonaparte, Consp. Gen. Av., i, 1850, 15; Rev. Mag. Zool., vi, 1854, 531.—Cassin, Illustr. Birds California, Texas, etc., 1854, 111; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 43, part.—Brewer, North Amer. Ool., i, 1857, 48, pl. 4, fig. 37, part.—Baird, Cat. North Amer. Birds, 1859, No. 43, part.—

Schlegel, Mus. Pays-Bas, ii, No. 3, livr. 1, 1862, 12, part (monogr.).—Dresser, 1865, 328 (Leona and Atascosa Rivers, s. Texas, abund.; breeding).—Cooper, Orn. California, Land Birds, 1870, 451.—Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 326, part.—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1874, 23 (lower Wabash Valley, Ill.).—Henshaw, Zool. Expl. W. 100th Meridian, 1875, 427, part (s. of Apache, Ariz.; Zuñi, N. Mex., common).—Nelson, Proc. Boston Soc. Nat. Hist., xvii, 1875, 363 (Nevada City, Calif.); Bull. Essex Inst., ix, 1877, 42 (s. Illinois; 1 spec.), 65 (s. Illinois).—Brewster, Bull. Nuttall Orn. Club, v, 1880, 57 (habits; prowess).—Batchelder, Bull. Nuttall Orn. Club, vi, 1881, 58 (St. Johns River, Fla.; habits).—Coues, Key North Amer. Birds, 1872, 219, part; Check List North Amer. Birds, ed. 2, 1882, No. 534, part; Key North Amer. Birds, ed. 2, 1884, 555, part.—Nehrling, Bull. Nuttall Orn. Club, vii, 1882, 174 (Houston, etc., se. Texas, breeding).—Gurney, List Diurn. Birds Prey, 1884, 58, part; Cat. Birds Prey, 1894, 23, part.—Reid, U. S. Nat. Mus. Bull. 25, 1884, 223 (Bermuda; sev. records).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (n. Mexico).—Lantz, Trans. Kansas Acad. Sci., 1896–97 (1899), 256 (Kansas; rare res.).—Sharpe, Handlist, i, 1899, 267, part.—Beyer, Proc. Louisiana Soc. Nat. Hist. for 1897–99 (1900), 99 (Louisiana; res.).—Reichenow, Die Vögel, i, 1913, 398.—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. No. 349, 1925, 96 (Rancho La Brea; bones).—Schüz, Journ. für Orn., lxxv, 1927, 99, 144, in text (powder downs).—Bradlee and Mowbray, Proc. Boston Soc. Nat. Hist., xxxix, 1931, 329 (Bermuda; occ. vis.).—Ganier, Wils. Bull., xliv, 1932, 1 (Tennessee; breeding).—Groebbels, Der Vögel, i, 1932, 286, in text (food), 378, in text (feeding young), 620 (body weight), 698 (frequency of feeding); ii, 1937, 170 (breeding biol.), 204 (uses leaves to line nest), 231, in text (nest in use for 60 years).—Harper, Auk, liii, 1936, in text (feathers).

Haliaëtos leucocephalus Bonaparte, Geogr. and Comp. List, 1838, 3.—Keyserling and Blasius, Wirbelth. Eur., 1840, xxx, 139.—Maximilian, Journ. für Orn., 1858, 3.—Martens, Journ. für Orn., 1859, 212 (Bermuda).

Haliaëtus (*Haliaëtus*) *leucocephalus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 261.

Haliaectus leucocephalus leucocephalus Grinnell, Pacific Coast Avif., No. 3, 1902, 33 (California; along entire seacoast; locally); No. 8, 1912, 10 (California); No. 11, 1915, 67 (Santa Barbara Islands, common res.; sparingly on mainland); Univ. California Publ. Zool., xxxii, 1928, 116 (distr., Lower California).—Grinnell and Daggett, Auk, xx, 1903, 33 (Coronados Islands, Lower California, breeding).—Linton, Condor, x, 1908, 127 (Santa Cruz Island, Calif.).—American Ornithologists' Union, Check-list, ed. 3, 1910, 162, part; ed. 4, 1931, 71.—Willett, Pacific Coast Avif., No. 7, 1912, 48 (Santa Barbara Islands, res. and breeding; Los Angeles and Orange Counties, Calif., breeding); Pacific Coast Avif., No. 21, 1933, 45 (sw. California; fairly common res. on Santa Barbara Islands; rare on mainland; breeds mostly in Feb. and Mar.).—Tyler, Pacific Coast Avif., No. 9, 1913, 44 (Fresno County, Calif.; 1 seen near Clovis).—Swarth, Pacific Coast Avif., No. 10, 1914, 27 (Arizona: Mogollon Mountains; breeds; Fort Whipple, Fort Apache).—Howell, Pacific Coast Avif., No. 12, 1917, 55, 109 (Santa Barbara Island, common res.; breeding).—Ericksen, Auk, xxxvi, 1919, 385 (St. Catherines Island, Liberty County, Ga.; breeding).—Pearson, Brimley, and Brimley, Birds North Carolina, 1919, 171 (North Carolina; descr.; habits).—Swann, Synopt. List Accip., pt. 3, 1920, 90; Synop. Accip., pt. 3, 1922, 141.—Holt, Geol. Surv. Alabama. Mus. Pap. No. 4, 1921, 51 (Ala-

bama; common on coast of Baldwin County).—Howell, Auk, xxxviii, 1921, 256 (Royal Palm Hammock, Fla.; rare res.); Birds Alabama, 1924, 138; ed. 2, 1928, 138 (Alabama; distr.; habits); Florida Bird Life, 1932, 182 (genl.; Florida).—Corrington, Auk, xxxix, 1922, 544 (Biloxi, Miss.; winter).—Hartert, Vög. pal. Fauna, iii, 1922, 2207.—Dawson, Birds California, stud. ed., iii, 1923, 1711 (genl.; California).—Figgins, Auk, xl, 1923, 675 (Black Bayou, La.; breeding).—Bent, Wils. Bull., xxxvi, 1924, 13 (near Guadalupe River, se. Texas).—Nice and Nice, Birds Oklahoma, 1924, 43 (genl.; Oklahoma).—van Denbergh, Condor, xxvi, 1924, 70 (Todos Santos Island).—Bailey, Birds Florida, 1925, 71, pl. 40 (fig.; descr.; Florida).—Simmons, Birds Austin Region, 1925, 105 (Austin, Tex.; habits; etc.).—Wheeler, Birds Arkansas, 1925, 53, xv, xx (Arkansas; habits; distr.).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 104 (descr.; characters).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 428 (s. Florida).—Worthington and Todd, Wils. Bull., xxxviii, 1926, 212 (Choctawhatchee Bay, Fla.).—Bent and Copeland, Auk, xliv, 1927, 380 (Tampa Bay; near Basinger, Fla.).—Huey, Condor, xxix, 1927, 153 (Laguna Hanson, Lower California).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 299 (Modoc County, Calif.).—Bailey, Auk, xlv, 1928, 279 (winter; Chenier au Tigre, La.).—Linsdale, Univ. Kansas Sci. Bull., xviii, 1928, 539 (near Geary, e. Kansas).—Pickens, Wils. Bull., xl, 1928, 190 (upper South Carolina).—Black, Wils. Bull., xli, 1929, 41, in text (Arkansas).—Cookman, Wils. Bull., xlii, 1930, 65 (Santa Cruz Island, Calif.).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 190 (distr.; Lassen Peak region, n. California).—Baerg, Univ. Arkansas Agr. Exp. Stat. Bull. 258, 1931, 50 (descr.; range; food; Arkansas).—Brooks, Wils. Bull., xliii, 1931, 145, in text (Wheeling. W. Va.).—Esten, Auk, xlviii, 1931, 573 (weight).—Peters, Check-list Birds of World, i, 1931, 258; Bird-Banding, vii, 1936, 13 (external parasites).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 24 (w. Tennessee; Oklahoma; Arkansas).—Tomkins, Wils. Bull., xlv, 1933, 200, in text (flight habits).—Howell, Auk, lii, 1935, 79, in text (Brevard County, Fla.; incubating a great horned owl's egg); Wils. Bull., lviii, 1941, 42 (Brevard County, Fla.; nest.); Auk, lviii, 1941, 105, in text (Cape Sable, Fla.; early nesting record).—Long, Univ. Kansas Sci. Bull., xxxvi, 1935, 231 (Morton County, Kans.; Nov. 9; 1 seen); Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; occ. winter).—Deaderick, Auk, liii, 1936, 349, in text (Garland County, Ark.; sev. records); Wils. Bull., l, 1938, 263, in text (Hot Springs National Park, Ark.; uncommon).—Harper, Auk, liii, 1936, 382, in text (feathers).—Hudson and Sherman, Auk, liii, 1936, 311, in text (Pickens County, S. C.; spec.).—Imler, Trans. Kansas Acad. Sci., xxxix, 1936, 300 (Rooks County, Kans.; fairly common; winter); Bird-Banding, viii, 1937, 168, in text (Rooks County, Kans.; weights).—van Rossem, Pacific Coast Avif., No. 24, 1936, 21 (Charleston Mountains, Nev.).—Burleigh, Auk, liv, 1937, 453, in text (Oregon Inlet, N. C.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 360 (Gulf coast of Mississippi; res.; breeds).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 321 (life hist.).—Jenks and Stevenson, Condor, xxxix, 1937, 87, in text (Arizona).—Murphey, Contr. Charleston Mus., ix, 1937, 13 (Savannah Valley, Ga.; spec. in 1904, seen last in 1907).—Unglish, Condor, xxxix, 1937, 39, in text (Gilroy, Calif.).—Oberholser, Bird Life Louisiana, 1938, 175 (Louisiana; res.; habits; food; nest).—Moore and Mizelle, Wils. Bull., li, 1939, 44, in text (Stillwater, Okla.).—Wetmore, Proc. U. S. Nat. Mus., lxxxvi, 1939, 182 (Reelfoot Lake, Tenn.).—Alcorn, Condor, xlii, 1940, 170,

in text (Churchill County, Nev.).—Baldwin, Auk, lvii, 1940, 413, in text (Bull Island, S. C.; robs marsh hawk of food).—Kenyon, Condor, xlii, 1940, 265, in text (Baldwin Lake, Calif.; feeding habits).—McIlhenny, Bird-Banding, xi, 1940, 109 (Avery Island, La.).—Vogt, Condor, xliii, 1941, 162 (Lassen Volcanic National Park).—Pearson, Brimley, and Brimley, Birds North Carolina, 1942, 99 (North Carolina; genl.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 106 (California; permanent res.).—Hill, Auk, lxi, 1944, 230, 231 (meas.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 35 (Georgia; fairly common; breeds in coastal areas, not inland).—Broley, Wils. Bull., lix, 1947, 1 (migr.; distr.).

Haliaetus leucocephalus leucocephalus Pindar, Wils. Bull., xxxvi, 1924, 205 (status in e. Arkansas).—Fargo, Wils. Bull., xxxviii, 1926, 149 (Pinellas and Pasco Counties, Fla.).—Bailey, Birds New Mexico, 1928, 180 (genl.; New Mexico).—[Arthur], Birds Louisiana, 1931, 203 (descr.; stat.; Louisiana).—Nice, Birds Oklahoma, rev. ed., 1931, 75 (genl.; Oklahoma).—McCabe, Bird-Banding, viii, 1937, 180, in text (Florida; nesting).

Haliaeetus leucocephalus alascanus Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 24 (Missouri; rare permanent res.; rare winter).

Haliaectus leucocephalus washingtoniensis Duvall, Auk, liv, 1937, 462, in text (Knotts Island, N. C.; nesting).

Falco albicilla β Linnaeus, Syst. Nat., ed. 10, i, 1758, 89 (*ex* Catesby, Nat. Hist. Carolina, i, 1731, i, pl. 1).

(?) *Falco americanus* (not of Boddaert, 1783) Gmelin, Syst. Nat., i, pt. 1, 1788, 257.—Shaw, Gen. Zool., vii, 1809, 88.

Falco pygargus Daudin, Traité d'Orn., ii, 1800, 62, part.

Falco ossifragus (not *F. ossifraga* Brünnich) Shaw, Gen. Zool., vii, 1809, 81, part (young).—Wilson, Amer. Orn., vii, 1813, 16, pl. 55, fig. 2 (= young).—Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 344; Obs. Wilson's Amer. Orn., 1826, [5.]

"*Haliaeetus-floridana*" Bailey, Bailey Mus. and Libr. Nat. Hist. Bull. 4, 1930, [2] (lower Florida Peninsula).

HALIAEETUS LEUCOCEPHALUS WASHINGTONIENSIS (Audubon)

Northern Bald Eagle

All plumages similar to those of *Haliaeetus leucocephalus leucocephalus*, but the birds averaging larger in size.

Adult male.—Wings 570–612 (588.6); tail 290–322 (309.7); culmen from cere 49–57 (52.5); tarsus 84.5–106 (99.8); middle toe without claw 67–74 (70.4 mm.).[49]

Adult female.—Wings 605–685 (640.2); tail 300–365 (339.4); culmen from cere 47.0–58 (54.1); tarsus 83–110 (101.9); middle toe without claw 70–82 (74.5 mm.).[50]

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[49] Twenty-nine specimens from Alaska, Massachusetts, New York, Pennsylvania, Virginia, Arkansas, Iowa, and North Carolina.

[50] Forty-two specimens from Bering Island, Alaska, Northwest Territory, New Brunswick, Maine, Massachusetts, New York, Pennsylvania, Virginia, Iowa, and North Carolina. Only the wing length is based on all these specimens; the other measurements are based on 16 specimens (as the wing dimensions of the other 14 were sent me, not personally made).

Range.—Breeds from the Arctic coast of eastern Siberia (reported from Nishni Kolymsk; Chuckche Peninsula), Bering Island, northwestern Alaska (Wrangell Narrows; Sitka; Noatak River; Kodiak Island); Aleutian Islands (Attu, Unalaska); Iktigalik; Admiralty, Chichagof, and Baronoff Islands; (not found on St. Lawrence Island, however, or the Pribilofs); Stikine River; Mackenzie (Anderson and Lockhart Rivers; Artillery Lake, Mactavish Bay); Keewatin (Fort Churchill; Oxford Lake); east to Ungava (Ungava Bay); Labrador (Okak; Petitsikapan Lake); southeastern Quebec (Gaspé County; Wolf Bay; Anticosti Island); Newfoundland (Humber River; Frenchmans Cove; Placentia Bay); and Nova Scotia (Pictou; Grand Lake; Halifax); south across North America to not far from the northern limit of the Lower Austral Zone, the exact southern limits being impossible of definition as the merging of the present race with the typical southern form is a very gradual one over a broad area. The southern limits may, however, be very roughly stated as southern Oregon; western and central Nevada (Pyramid Lake); southern Utah; southern Colorado; central Kansas; northern Iowa; south-central Illinois; central Kentucky; eastern Tennessee; and, possibly the western, mountainous parts of the Carolinas.

Winters from Alaska and northern Mackenzie, Ontario, Quebec, and Nova Scotia southward, throughout its breeding range, occurring farther south in a rather sporadic manner, at least as far south as Florida.

Type locality.—Henderson, Ky. (probably based on a winter straggler).

Vultur leucocephalus Temminck, Cat. Syst., 1807, 6, part.

Aquila leucocephala (not *Falco leucocephalus* Linnaeus).—Pallas, Zoogr. Rosso-Asiat., i, 1826, 347, part.

Aquila (*Haliaeetus*) *leucocephala* Swainson and Richardson, Fauna Bor.-Amer. ii, 1831, 15.

Aquila leucocephalus Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; common).

Haliaetus leucocephalus Lesson, Traité d'Orn., 1831, 40, part.—Audubon, Synopsis, 1839, 10, part; Birds Amer., 8vo ed., i, 1840, 57, pl. 14, part.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 74, part.—Giraud, Birds Long Island, 1844, 9 (Long Island, N. Y.).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 453; vii, 1855, 283 (Shoalwater Bay, Wash.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858 43, part.—Barry, Proc. Boston Soc. Nat. Hist., 1854, 2 (Wisconsin).—Brewer, North Amer. Ool., i, 1857, 48, pl. 4, fig. 37, part.—Baird, Cat. North Amer. Birds, 1859, No. 43, part.—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 151 (Shoalwater Bay, Vancouver, etc.; habits).—Schlegel, Mus. Pays-Bas, ii, No. 3, livr. 1, 1862, 12, part (monogr.); No. 36, livr. 10, 1873, 117 (Wisconsin).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity of New York City).—Allen, Amer. Nat., i, 1867, 41 (Massachusetts); Proc. Boston Soc. Nat. Hist., xvii, 1874,

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[51] Evidently based on a very large female of the bald eagle, though the specimen was stated to be a male bird. The extent of the wings is undoubtedly exaggerated, no eagle having an alar expanse of as much as 10 feet. The date when the specimen that served as the basis of Audubon's description and colored plate was taken was not given, but it must have been some time during the colder part of the year, when these large northern birds occasionally migrate into the United States.

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Haliaeetus leucocephalus alascensis Palmer, Avif. Pribilof Islands, 1899, 418 (St. Paul Island; occ.).

Haliaeetus leucocephalus alascanus American Ornithologists' Union, Auk, xvi, 1899, 109; Check-list, ed. 3, 1910, 163; ed. 4, 1931, 71; Auk, lxi, 1944, 445 (nomencl.).—Bishop, North Amer. Fauna, No. 19, 1900, 74 (near Wrangell Narrows, etc., Alaska); Auk, xxvii, 1910, 462 (near Willimantic, Conn., Oct. 27, 1909; meas.).—Grinnell, Pacific Coast Avif., No. 1, 1900, 76 (Kotzebue Sound region, Alaska; nest.; common at Noatak River; spec.); Univ. California Publ. Zool., v, 1909, 214 (Admiralty, Baranoff, and Chichagof Islands, Alaska; breeding; meas.; descr. nest and eggs).—Fleming, Auk, xviii, 1901, 38 (Parry Sound and Muskoka, n. Ontario, breeding); Auk, xxiv, 1907, 73 (Toronto, Ontario, rare winter vis.; meas.).—Osgood, North Amer. Fauna, No. 21, 1901, 43 (Queen Charlotte Islands, very common).—Chapman, Bull. Amer. Mus. Nat. Hist., xx, 1904, 402 (Muller Bay, Cook Inlet, Alaska, breeding).—[Nash], Check List Vert. Ontario; Birds, 1905, 42 (Ontario; permanent res.).—McGregor, Condor, viii, 1906, 120 (Unalaska, Akun, and Unimak Islands, Aleutians, breeding; descr. eggs).—Sage, Bishop, and Bliss, Birds Connecticut, 1913, 82 (crit.).—Eaton, Birds New York, ii, 1914, 95 (New York; col. fig.; descr.; distr.; habits).—Thayer and Bangs, Proc. New England Zool. Club, v, 1914, 33 (Arctic coast, e. Siberia, breeding).—Brooks (W. S.), Bull. Mus. Comp. Zool., lix, 1915, 398 (se. Alaska; breeding on Woewodsky and North Semidi Islands).—Brooks (A.), Auk, xxxiv, 1917, 38 (Chilliwack, Brit. Columbia, res.); xxxix, 1922, 556 (habits in Brit. Columbia); xl, 1923, 221 (Porcher Island, Brit. Columbia).—Fleming and Lloyd, Auk, xxxvii, 1920, 433 (Scarboro Bluffs, Toronto, Ontario, Jan. 26, 1918).—Swann, Synopt. List Accip., pt. 3, 1920, 91; Synop. Accip., pt. 3, 1922, 41.—Bishop, Auk, xxxviii, 1921, 585 (near Branford, Conn., Mar. 14, 1915).—Saunders, Pacific Coast Avif., No. 14, 1921, 64 (Montana; rare res.; spec.; Flathead River).—Willett, Condor, xxiii, 1921, 158 (habits, se. Alaska).—Hartert, Vög. pal. Fauna, iii, Hefts 4–5, 1922, 2207 (crit.).—Swarth, Univ. California Publ. Zool., xxiv, 1922, 213 (Stikine region, s. Alaska); xxx, 1926, 111 (Atlin, Brit. Columbia); Pacific Coast Avif., No. 22, 1934, 15 (Nunivak Island, Alaska), 24 (Sitkalidak and Unalaska, Alaska).—Preble and McAtee, North Amer. Fauna, No. 46, 1923, 82 (occas. on Pribilof Islands?).—Soper, Auk, xl, 1923, 498 (Wellington County, Ontario, May 2, 1905).—Mitchell, Can. Field Nat., xxxviii, 1924, 109 (Saskatchewan; not common).—Lewis, Auk, xlii, 1925, 82 (Ragg Bay, near Betchewun, Labrador Peninsula).—Bailey, Condor, xxviii, 1926, 123 (Unalaska); Auk, xliv, 1927, 203 (Klawack, Hooniah Sound, etc., se. Alaska).—DeMille, Auk, xliii, 1926, 517 (Blake Lake; Cross Point, Gaspé County, Quebec).—Kelso, Ibis, 1926, 703 (Arrow Lakes, Brit. Columbia; res.).—Taverner, Birds Western Canada, 1926, 202, in text; Birds Canada, 1934, 137, in text (Canada; genl.; col. fig.).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 156, pls. 37, 38, 41 (fig.; descr.; habits; New England).—Alford, Ibis, 1928, 197 (Vancouver Island, Brit. Columbia).—Snyder, Trans. Roy. Can. Inst., xvi, pt. 2, 1928, 259 (Lake Nipigon region, Ontario).—Cumming, Murrelet, xii, 1931, 16 (Queen Charlotte Islands; abund.); xiii, 1932, 6 (Vancouver, Brit. Columbia; abund.; migr.; nest.).—Snyder and Logier, Trans. Roy. Can. Inst. xviii, pt. 1, 1931, 181 (Long

Point area, Norfolk County, Ontario; breeds; food).—Austin, Mem. Nuttall Orn. Club, No. 7, 1932, 65 (Newfoundland, Labrador).—Hurley, Murrelet, xiii, 1932, 38 (Bristol Bay, Alaska; few records).—Roberts, Birds Minnesota, i, 1932, 335 (distr.; habits; Minnesota).—Hall, Murrelet, xiv, 1933, 32, 33, 35. in footnotes and text (Puget Sound; hist).—Harrold, Wils. Bull., xlv, 1933, 19, in text (Saskatchewan; 1 rec.).—Hicks, Wils. Bull., xlv, 1933, 179, in text (Ashtabula County, Ohio; freq. in summer).—Friedmann, Journ. Washington Acad. Sci., xxiv, 1934, 232 (Amaknak Island; bones from old archeological sites), 235 (Kodiak Island; bones); Chicago Acad. Sci. Bull. 6, No. 3, 1935, 29 (Kodiak Island; spec.; eggs; bones).—Tyrrell, Auk, li, 1934, 25 (Whitefish Point, Mich.; migr.).—Shelley, Auk, lii, 1935, 305, in text (New Hampshire; spec.).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 23, in text (Ontario).—Eyerdam, Murrelet, xvii, 1936, 50 (e. Aleutian Islands; distr.).—Bent, U. S. Nat. Mus. Bull. 167, 1937, 333 (life hist.).—MacLulich, Contr. Roy. Ontario Mus. Zool., No. 13, 1938, 9 (Algonquin Prov. Park, Ontario; rare res.; food; habits; probably 1 or 2 nesting pairs).—Munro, Wils. Bull., l, 1938, 28, in text (Brit. Columbia; habits).—Cowan, Occ. Pap. Brit. Columbia Prov. Mus., No. 1, 1939, 25 (Peace River District, Brit. Columbia; 2 records).—Racey, Murrelet, xx, 1939, 10, in text (Point Grey, Brit. Columbia; records).—Campbell, Bull. Toledo Mus. Sci., i, 1940 57 (Lucas County, Ohio; uncommon permanent res.).—Dear, Trans. Roy. Can. Inst., xxiii, 1940, 125 (Thunder Bay, Lake Superior, Ontario; rare summer res.; breeding records).—Gabrielson and Jewett, Birds Oregon, 1940, 195 (Oregon; uncommon except along coast; Columbia River and Klamath Lake country; descr.; distr.; nest.).—Murie, Condor, xlii, 1940, 198, in text (Aleutian Islands, Alaska; food; econ. stat.).—Nice, Bird-Banding, xi, 1940, 180, in text (Aleutian Islands, Alaska; food; nest.).—Todd, Birds Western Pennsylvania, 1940, 150 (w. Pennsylvania; descr.; col. fig.; life hist.; syn.).—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 12 (sw. Ohio; occ. migr.).—Jewett, Murrelet, xxiii, 1942, 69 (se. Alaska; Juneau to Cleveland Peninsula; observed).—Cahalane, Auk, lx, 1943, 539 (Kodiak region, Alaska); lxi, 1944, 362 (Alaska: Katmai area, Iliamna Lake, Naknek River, Brooks River, mouth of Ukak River, Mount Katolinat, Brooks Lake, Windy Creek, s. edge Valley Ten Thousand Smokes, Savanoski River, Shelikof Strait, Kinak Bay, Becharof Lake).—Gabrielson, Auk, lxi, 1944, 120 (Alaska; seen nearly every day at Petersburg for a month; common at Bristol Bay; 10 seen along Knichak River, 6 at Cordova and Mount McKinley Park).—Hill, Auk, lxi, 1944, 230 (meas., sex dimorphism).

Haliaetus (=*Haliaeetus*) *leucocephalus alascanus* Pleske, Mem. Boston Soc. Nat. Hist., vi, 1928, 307 (Chukche Peninsula, Siberia).

Haliaetus alascanus Sharpe, Hand-list, i, 1899, 267.

(?) *Falco albicilla*? (not *Vultur albicilla* Linnaeus) Townsend, Journ. Acad. Nat. Sci. Philadelphia 1839, 151 (nw. United States).

Haliaetus albicilla Cassin, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 453 (n. North America).

Haliaetus albicillus Sclater, Proc. Zool. Soc. London, 1863, 251 (Nova Scotia; Newfoundland).

Haliaeetus albicilla Bishop, Auk, xxii, 1905, 79 (Vancouver Island; see Bishop, Auk, xxvii, 1910, 463).

Aquila albicilla Weiz. Proc. Boston Soc. Nat. Hist., x, 1866, 267 (Okak, Labrador).

Haliaetus hypoleucus Stejneger MS., Ridgway, Proc. U. S. Nat. Mus., vi, 1883, 90 (Bering Island, Kamchatka; coll. U. S. Nat. Mus.).

Haliaetus albicilla subspecies a. *hypoleucus*? Gurney, List Diurn. Birds Prey, 1884, 58.

Haliaectus hypoleucus Stejneger, U. S. Nat. Mus. Bull. 29, 1885, 213 (Bering Island; crit.).

Haliaetus hypoleucus Reichenow and Schalow, Journ. für Orn., 1885, 457 (reprint of original description).—Gurney, Cat. Birds Prey, 1894, 23.—Sharpe, Hand-list, i, 1899, 267.

Thrasaëtus harpyia (not *Vultur harpyia* Linnaeus) Lowe, Auk, xxxiv, 1917, 454, (Pueblo County, Colo.; see Lincoln, Auk, xxxv, 1918, 78, 79).

Subfamily Circinae: Harriers

Circinae Bonaparte, Rev. Mag. Zool., 1850, 491.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 141.—Sclater and Salvin, Nom. Av. Neotr., 1873, 118.—Coues, Key North Amer. Birds, ed. 5, 1903, 651.—Peters, Check-list Birds of World, i, 1931, 264.

Circeae Ridgway, Proc. Boston Soc.Nat. Hist., 1873, 55.

Asturinae limbo fasciali instructae Sundevall, Ofv. Svenska. Vet.-Akad. Forh., 1872, 22.

Coracoids not overlapping at sternum; nasal septum not completely ossified; upper portion of anterior face of tarsometatarsus with no bony ring; outer (fourth) toe not reversible; claws graduated in size from that of the hallux (largest) to that of the outer (fourth) toe (smallest), not contracted to their under surface; deep plantar tendons of type III; tendons of biceps not split; tensores patagii not peculiar; cervical vertebrae 13–14; caeca minute; palate desmognathous; sides of head densely feathered except around the eyes, which are overhung by a bare superciliary plate of the lachrymal, and have a bare space beneath the lower lid; lores sparsely feathered; sides of head with a postauricular transverse line of short, stiff, differently formed feathers (as in Striges) forming an incomplete ruff; orifice of the ear about as large as eye, and in some cases, at least, with a decided conch; bristlelike feathers of lores very long and slender, their tips extending much above the upper outline of the cere, and strongly recurved; bill rather weak, not toothed or notched; legs long, the tarsus approximately equaling tibia in length (as in Accipitrinae; wings and tail long.

Genus CIRCUS Lacépède

Circus Lacépède, Tableau Ois., 1799, 4. (Type, as designated by Lesson, 1828, *Falco aeruginosus* Linnaeus.)

Pygargus Koch, Syst. Baier. Zool., 1816, xxxii, 127. (Type, by monotypy, *P. dispar* Koch=*Falco cyaneus* Linnaeus.)

Strigiceps Bonaparte, Geogr. and Comp. List., 1838, 5. (Type, as designated by Gray, 1840, *Falco pygargus* Linnaeus, here=*F. cyaneus* Linnaeus. Name first published as a nomen nudum, in Gior. Arcadico, xlix, 1831, 36.)

Glaucopterix Kaup, Classif. Säugeth. und Vögel, 1844, 113. (Type, by monotypy, *Falco cineraceus* Temminck=*F. pygargus* Linnaeus.)

Glaucopteryx (emendation) Kaup, Classif. Säugeth. und Vögel, 1844, 113; Mus. Senckenb., iii, 1845, 258.

Spizacircus Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258. (Type, as designated by Gray, 1849, *Circus macropterus* Vieillot=*Aquila maculosa* Vieillot.)

Spiziacircus (emendation) Kaup, Arch. für Naturg., xvi, 1850, 32; *in* Jardine's Contr. Orn., 1850, 58.

Spizacirus (lapsus) Giebel, Thesaurus Orn., iii, 1877, 513.

Spilocircus Kaup, Isis, 1847, 89, 101. (Type, by monotypy, *Circus assimilis* Jardine and Selby.)

Pterocircus Kaup, Archiv. für Naturg., xvi, 1850, i, 32. (New name for *Glaucopterix Kaup*, preoccupied.)

Eucircus Acloque, Faune de France, i, 1900, 122. (Type, as designated by Richmond, 1917, *Falco acruginosus* Linnaeus.)

Pseudocircus Roberts, Ann. Transv. Mus., viii, 1922, 207. (Type, by original designation, *Accipiter macrourus* Gmelin.)

Melanocircus Roberts, Ann. Transv. Mus., viii, 1922, 207. (Type, by original designation, *Falco maurus* Temminck.)

Very slender, long-winged, long-tailed, slender-legged Buteonidae (wing about 309–457 mm.), with a postauricular transverse line of small, stiff, differently formed feathers (forming a "facial ruff," as in Striges).

Bill relatively small, compressed, its depth at base of culmen equal to more than one and a half times (sometimes nearly twice) its width at same point, and equal to about two-thirds the length (chord) of culmen; culmen gradually decurved from base, indistinctly if at all ridged, less than to more than one-fourth as long as tarsus, the maxillary unguis moderately long, very acute to rather obtuse at tip; maxillary tomium very slightly to distinctly sinuated, the convexity posterior to the postunguinal concavity never very conspicuous; gonys about half as long as culmen, nearly straight to moderately convex, ascending terminally; cere relatively long, its length on top equal to at least three-fifths (sometimes three-fourths) the length of culmen, its upper outline strongly ascending posteriorly, its anterior outline strongly sinuate (convex in front of nostril, receding and more or less concave below); nostril relatively large, horizontally oval, ovate, or subpyriform, the smaller end the anterior one. Wing very long and pointed, the longest primary exceeding distal secondary by one-third to nearly three-fifths the length of wing; third, third and fourth, or fourth primary longest, the first usually equal to or longer than sixth, but sometimes shorter than seventh; three to four outer primaries with inner webs emarginated. Tail a little more than half to three-fifths as long as wing, its tip slightly rounded, double-rounded, or slightly doubly emarginate. Tarsus usually about one-fifth as long as wing (less than one-sixth as long in *C. pygargus*), much less than one-fourth (*C. pygargus*) to much more than one-third (*C. aeruginosus*) as long as tail, relatively slender, the upper portion feathered in front for from less than one-third to two-fifths its length, the acrotarsium and planta tarsi each with a single continuous series

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of broad transverse scutella; middle toe more than two-fifths as long as tarsus; outer toe much longer than inner toe, extending beyond base (sometimes to middle) of penultimate phalanx of middle toe, the inner not reaching much, if any, beyond base of the same or even (in *C. cyaneus* and *C. pygargus*) falling short of the point; hallux much shorter than inner toe, its claw equal to or longer than the digit; claws rather slender, strongly curved, acute, distinctly graduated in size, that of outer toe about two-thirds as long as that of hallux.

Plumage and coloration.—Plumage soft, the remiges and rectrices moderately rigid; feathers immediately behind auricular region small, stiffish, with rounded tips, forming a "facial ruff," as in Striges and genus *Micrastur;* bristles of loral region long, overlapping whole of cere, very slender, curved backward terminally, where projecting above upper outline of cere.[52] Coloration extremely variable, but adult males with more or less bluish gray on upperparts (sometimes almost uniformly so), the upper tail coverts usually white or partly so; adult females and young without any bluish gray, the general color brownish (at least on upper part), the underparts usually paler, often striped with brownish, the upper tail coverts usually white or partly white.

Range.—Greater part of world, but wanting in northern Asia north of 60° N. latitude, Oceania, and Galápagos Archipelago. (Many species, but only one North and Middle American species.)

Type.—Circus aeruginosus (Linnaeus).

CIRCUS CYANEUS HUDSONIUS (Linnaeus)

MARSH HAWK

Adult male.—Head, neck, breast, and upperparts generally (except the upper tail coverts) light neutral gray to deep neutral gray, washed with brownish, especially on scapulars, tertials, and interscapulars, often on the occiput and nape as well; occiput slightly darker than the crown and streaked with whitish, tinged with cinnamon; the upper wing coverts neutral gray with dusky shafts; remiges similar, but the five outermost primaries fuscous to fuscous-black on the inner webs for their distal half (or a little less than half in some cases), occasionally on the outer web also; the inner primaries and the secondaries with a broad, but rather indefinite subterminal band of dark hair

[52] The pterylosis of *Circus* is said by Nitzsch to be very similar to that of *Milvus, Pernis,* and *Astur,* differing chiefly in the oblique position of the outer branch of the inferior tract (ventral pteryla), which does not run parallel to the main stem and is therefore rather more connected with the latter anteriorly; a distinct oval apterium before the ear and beneath the eye; remiges 24–25; there is one pair of inguinal powder down patches, ascending on each side of the dorsal portion of the spinal tract to the shoulders.

brown to light fuscous, the basal half or so of the inner webs of the remiges white, the amount of pure white decreasing from the outermost to the innermost remex, the decrease due to a progressive extension and widening of the neutral gray area basally on the inner web next to the shaft on these feathers, the light areas on the inner webs of the secondaries and inner primaries crossed by two or three

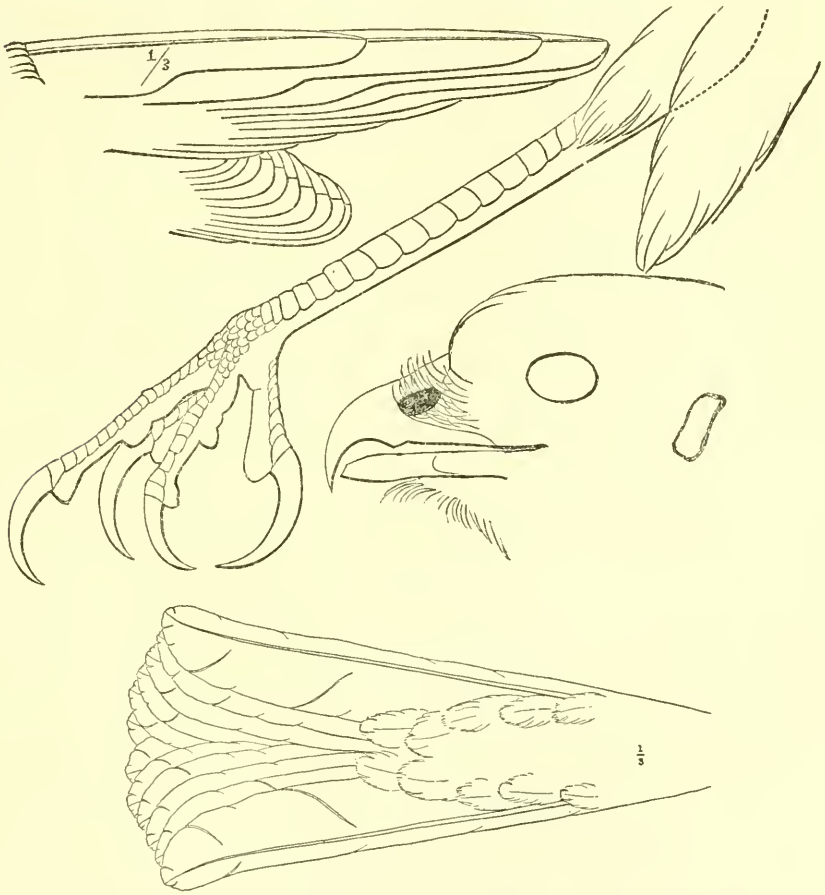

FIGURE 37.—*Circus cyaneus.*

incomplete fuscous bars; upper tail coverts white; tail neutral gray to deep neutral gray, whitish basally and at the tip, with a fairly broad subterminal fuscous band, and, anterior to this by five to seven narrow and often indistinct bands of the same; the rectrices whitish on their inner webs, making the bands stand out more distinctly, sometimes washed with buff to pale tawny; lower breast, abdomen, sides, flanks, thighs, and under tail coverts white; the sides, lower breast, and upper abdomen usually with small wood brown to tawny-olive wedge-

shaped spots, the thighs and under tail coverts with fewer and smaller spots or none at all; under wing coverts white, a few of the greater outer ones with some narrow dusky bars; cere and edge of eyelid gamboge yellow; bill blackish; abruptly bluish at base from below nostril; iris King's yellow; feet deep cadmium, claws black; inside of mouth purplish pink.

Adult female.—Above, head, neck, scapulars, interscapulars, upper wing coverts, remiges, and back sepia to Saccardo's umber or olive-brown, the feathers of the crown, occiput, and nape edged laterally with rufous to tawny-buff; the lesser upper wing coverts and scapulars irregularly blotched with light pinkish cinnamon to cinnamon, this color irregularly bordering and indenting the feathers; remiges, especially the primaries, becoming whitish basally on the inner web, and more or less obscurely banded with four to six narrow bars of dark sepia, the bars becoming distinct on the whitish areas of the inner webs; feathers of the rump like the back but with narrow rufescent or tawny tips and edges; upper tail coverts white, contrasting sharply with the rump and with the tail; central pair of rectrices Saccardo's umber to sepia, sometimes with a grayish cast; tipped with tawny whitish and crossed by six or seven regular, sharply defined, but not very contrasting bands of dark olive-brown, basally whitish; other tail feathers paler, more washed with tawny and becoming progressively slightly paler toward the outermost pair, the lateral ones being nearly pale cream or pale ochraceous; the dark bars, however, become darker on the lateral rectrices, pale fuscous, slightly paler again on the outermost pair; lores, superciliaries, and suborbital stripes dull buff to buffy white leaving a dusky stripe between them running back from the posterior angle of the eye; auriculars dull dark rufous to snuff brown indistinctly streaked with darker brown; feathers of the facial disk pale cream to pale tawny, each with a median stripe of dark snuff brown to pale fuscous; chin and upper throat dirty white to pale buff, similar to the orbital and superciliary stripes; lower throat and breast like the upper throat, but each feather with a broad shaft stripe of snuff brown to tawny cinnamon and sometimes the whole area washed with cinnamon; abdomen, thighs, sides, flanks, and under tail coverts whitish more or less washed with cinnamon to buff and usually with numerous (few in some cases) longitudinal stripes of Saccardo's umber to orange-cinnamon, these stripes becoming smaller posteriorly where they may become mere shaft lines broadening subterminally into small wedge-shaped spots; the streaks on the sides usually long and narrow; under wing coverts whitish more or less washed with buff or tawny streaked with dark umber to fuscous; under surface of primaries dull white; crossed at wide intervals with wavy dark sepia bands; iris pale gray-brown to Vandyke brown;

cere light greenish; lower base of maxilla and basal half of mandible bluish, rest of bill blackish; tarsi and toes pale lemon yellow, claws black.

Juvenal (sexes alike).[53]—Above head, nape, back, scapulars, wings, rump, and tail similar to that of the adult female, but usually darker, dark bister to fuscous; the feathers of the head, nape, some of the interscapulars, and lesser upper wing coverts bordered with deep umber brown to ferruginous to Sanford's brown; upper tail coverts white as in adult, but tinged with cream or pale tawny; lateral rectrices more rufescent than in adult, and all the rectrices tipped with pale ochraceous; superciliaries, sides of head as in adult, but more rufescent, the pale areas cinnamon-buff to cinnamon; auriculars rich dark snuff brown; feathers of facial disk the same medially; edged with deep Sanford's brown; entire underparts cinnamon-rufous gradually paling posteriorly to cinnamon or even pale cinnamon; the lower throat and breast with a variable number of broad, dark, cinnamon-brown longitudinal streaks, the sides with narrow longitudinal streaks of the same; rest of underparts mostly immaculate, under wing coverts streaked with fuscous as in adults, but washed with cinnamon.

Downy young.—Entirely pale cinnamon-buff, tinged with grayish on the back and becoming almost white on the lower parts.

Adult male.—Wing 327.6–351.8 (339.6); tail 228.6–251.5 (241.5); culmen from cere 15–17.5 (16.1); tarsus 69.4–73.5 (72.8); middle toe without claw 30.5–33 (32.2 mm.).[54]

Adult females.—Wing 335–405 (367.5); tail 223–266 (249.5); culmen from cere 17.5–19 (18.5); tarsus 72–84 (79.5); middle toe without claw 31–38.5 (34.5 mm.).[55]

Range.—Breeds from northwestern Alaska (St. Michael, Kowak River, Noatak Bay, etc.) and Attu Island in the Aleutians, northwestern Mackenzie (Mackenzie River, lower Anderson River), northern Manitoba, northern Ontario, central Quebec (Gaspé), Labrador (Esquimaux Point, Betchwan), and Newfoundland south to northern Baja California (El Rosario, near Tijuana; Cape Colnett; San Ramón), formerly southern Arizona (Tucson), southern New Mexico (Pecos Valley south to Lake Arthur), southern Texas (Tom Green and Concho Counties), Missouri (Kansas City, St. Charles County, Montgomery City), southern Illinois, southern Indiana, Ohio, Maryland, and southeastern Virginia.

Winters from southern British Columbia (Okanagan, lower Fraser Valley), western Montana (Bitterroot Valley), western South Dakota,

[53] On the whole, in a long series, young males seem to average slightly paler below than young females, but the extremes are the same for both sexes.

[54] Forty-eight specimens from all parts of the range.

[55] Fifty-four specimens from all parts of the range.

Minnesota (casual), southern Wisconsin, lower peninsula of Michigan, New York, southern New England (coastal regions of Connecticut and Rhode Island; casual in southern Vermont and New Hampshire), south through the United States to Mexico (Chihuahua, San Luis Potosí, Sonora; Sinaloa; Oaxaca, Yucatán, etc.), Guatemala (in the higher areas Huehuetenango, San Lucas, Chichicastenango, Dueñas, San Gerónimo, Atitlán, etc.), El Salvador (Divisadero, Colima, Los Escesmiles, Lake Olomega), Nicaragua (Río Escondido), Costa Rica (San José, Boruca, Candelaria Mountains), and Panama (Lion Hill, Volcán de Chiriquí), and to the Bahamas (Inagua, New Providence), Cuba, the Isle of Pines, Hispaniola, Tortue Island, and Puerto Rico.

Casual in Colombia (Río Atrato, Medellín). Accidental in Barbados and in Hawaii (Oahu).

Type Locality.—Hudson Bay.

Falco spadiceus Forster, Philos. Trans., lxii, 1772, 383 (Hudson Bay; based on *Chocolate Falcon* Forster, Fauna Amer. Sept., p. 9=young male).—Gmelin, Syst. Nat., i, pt. 1, 1788, 273.

Falco uliginosus Gmelin, Syst. Nat., i, pt. 1, 1788, 278 (Jamaica; Pennsylvania; based on *Marsh Hawk* Pennant, Arctic Zool., ii, 208, No. 105; Edwards, Av., 4, pl. 291; Latham, Synop., i, pt. 1, 90, No. 70).—Latham, Index Orn., i, 1790, 40.—Daudin, Traité d'Orn., ii, 1800, 173.—Wilson, Amer. Orn., vi, 1812, 67, pl. 51, fig. 1 (fig. 2 on plate).—Bonaparte, Obs. Wilson's Amer. Orn., 1826 [240].

Falco ? uliginosus Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 352; Obs. Wilson's Amer. Orn., 1826 [12].

Circus uliginosus Vieillot, Ois. Amér. Sept., i, 1807, 37.—Jardine, ed. Wilson's Amer. Orn., i, 1831, 88.—Kaup, *in* Jardine's Contr. Orn., 1850, 58.—Maximilian, Journ. für Orn., 1858, 20 (New Harmony, Ind.; descr. imm.).

Circus (*Strigiceps*) *uliginosus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258.

Strigiceps uliginosus Bonaparte, Geogr. and Comp. List, 1838, 5.

Falco variegatus Latham, Index Orn., i, 1790, 24 (based on *Buzzardet* Pennant, Arctic Zool., ii, No. 109; *Speckled Buzzard* Latham, Synopsis, i, 97).

Circus variegatus Vieillot, Ois. Amér. Sept., i, 1807, 37; Nouv. Dict. Hist. Nat., iv, 1816, 466 (North America).

Falco cyaneus β Latham, Index Orn., i, 1790, 40.

Falco cyaneus γ Latham, Index Orn., i, 1790, 40.

Falco cycneus (typog. error?) Sonnini, Nouv. Dict. Hist. Nat., i, 1816, 227, part (North American localities).

Falco cyaneus Bonaparte, Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 33; Contr. Maclurian Lyc., i, 1827, 11; Amer. Orn., ii, 1828, pl. 2.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 109.—Audubon, Orn. Biogr., iv, 1838, 396, pl. 356.

Buteo (*Circus*) *cyaneus* Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 70 (fig. of head and bill with descr. of latter).

Circus cyaneus? var. ? Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, pl. 29.

Circus cyaneus Jardine, ed. Wilson's Amer. Orn., ii, 1832, 391.—Audubon, Synopsis, 1839, 19; Birds Amer., 8vo ed., i, 1840, 105, pl. xxvi.—d'Orbigny,

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Zool. Louisiana State Univ., No. 3, 1939, 26 (ne. Mexico; Nuevo León; Tamaulipas; s. Coahuila).—Wetmore, Proc. U. S. Nat. Mus., lxxxvi, 1939, 182 (Tennessee: Reelfoot Lake, Huntingdon, Dover, near Pulaski, Carvers Gap on Roan Mountain); lxxxviii, 1940, 534 (Kentucky: Roundhill and near Richmond).—Witherby et al., Handbook Brit. Birds, iii, 1939, 70, in text (North America).—Bond, Check List Birds West Indies, 1940, 24 (West Indies; uncommon winter vis.); ed. 2, 1945, 24 (West Indies; uncommon winter vis.).—Trautman, Misc. Publ. Mus. Zool. Univ. Michigan, No. 44, 1940, 218 (Buckeye Lake, Ohio; common spring and fall trans.; winter; rare in summer).—Sutton and Burleigh, Ann. Carnegie Mus., xxviii, 1941, 170 (Hidalgo; 6 miles n. of Jacala; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 203 (Chichen Itzá, Yucatán).—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 33 (Cuba; common winter res.).—American Ornithologists' Union, Auk, lxi, 1944, 445 (nomencl.).—Behle, Condor, xlvi, 1944, 71 (Utah).—Burdick, Condor, xlvi, 1944, 239 (n. Cascade Mountains, Wash.).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 360 (Gulf Coast of Mississippi; common in winter).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 106 (California; winter vis.).—Borrero, Caldasia, iii, 1945, 412 (Colombia; common Nov.–Mar.).—Goslin, Wils. Bull., lvii, 1945, 131 (Ohio; bones, Indian mounds).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 35 (Georgia; common winter).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 10 (Nebraska; common perm. res.).—McAllister and Marshall, Auk, lxii, 1945, 183 (Fremont National Forest, Oreg.).—Packard, Auk, lxii, 1945, 375 (Colorado, Rocky Mountain National Park).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 60 (Sonora; common migr. and winter vis.).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 39 ("Navaho Country," se. Utah and ne. Arizona; migr. and winter res.).—Alcorn, Condor, xlviii, 1946, 132 (Lahonton Valley, Nev.).—Campbell, Auk, lxiii, 1946, 88 (Ohio; longevity; one individual 16 years old).—Packard, Auk, lxiii, 1946, 155, in text (Rocky Mountain National Park, Colo.; wandering birds).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mount Katahdin region, Maine).—Pearse, Murrelet, xxvii, 1946, 6 (Comox, Vancouver Island, Brit. Columbia; decreased to rarity).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., i, 1947, 199 (Idaho).—Brackbill, Auk, lxiv, 1947, 322 (Tennessee; 3 records for summer).—Stewart and Robbins, Auk, lxiv, 1947, 268 (Maryland; nests in various suitable marshes, especially tidewater).

Circus cyaneus b. var. *hudsonius* Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 55.

Circus cyaneus var. *hudsonius* b. *hudsonius* Coues, Birds Northwest, 1874, 327.

Circus cyaneus hudsonicus Henshaw, Ann. Lyc. Nat. Hist. New York, xi, 1874, 10 (Utah).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 14 (Cincinnati, Ohio; rare migr.).—Rutten, Ardea, xxiii, 1934, 116 (Santa Clara, Cuba).

Buteo spadiceus Vieillot, Ois. Amér. Sept., i, 1807, 34.

Circus gallinarius Lesson, Traité d'Orn., 1831, 84, part.

Buteo (*Circus*) *cyaneus* ? var. ? *americanus* Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 55.

Circus americanus Denny, Proc. Zool. Soc. London, 1847, 37.

Elanoides forficatus forficatus American Ornithologists' Union, Check-list, ed. 4, 1931, 63, part (New Brunswick).

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Genus GERANOSPIZA Kaup

Ischnosceles (not *Ischnocelis* Burmeister, 1842) Strickland, Ann. Mag. Nat. Hist., xiii, 1844, 409. (Type, by original designation, *Falco gracilis* Temminck.)
Ichnosceles (emendation) Kaup, Mus. Senckenb., iii, Heft 3, 1845, 259.
Ischnoceles (emendation) Wagner (A.), Arch. für Naturg., 1846, ii, 169.
Ischnoscelis (emendation) Kaup, Isis, 1847, 43, 183.
Ichnoscelis (emendation) Gray, Gen. Birds, i, 1849, 28.
Ichnoschelis (emendation) Bonaparte, Compt. Rend., xxxvii, Dec. 1853, 809.
Geranospiza Kaup, Isis, 1847, 43, 183, 953. (New name for *Ischnosceles* Strickland, preoccupied.)
Geranospizia (emendation) Kaup, Isis, 1848, 758.
Geranospizias (emendation) Sundevall, Disp. Met. Av. Tent., 1873, 107.
Geranopus Kaup, Isis, 1848, 758; 1849, 109. (New name for *Geranospiza* Kaup.)

Medium-sized, slender, long-legged Buteonidae (wing about 254–387 mm.), with tarsus more than one-fourth as long as wing, transversely scutellate both before and behind;[56] outer toe conspicuously shorter and smaller than inner toe; tibiotarsal joint flexing both forward and backward,[57] and loral, orbital, and malar regions feathered.

Bill relatively small, compressed, its width at base of culmen equal to about two-thirds its depth at same point, the latter equal to nearly two-thirds the length (chord) of culmen; the latter much longer than claw of hallux, but much less than one-fourth to less than one-fifth as long as tarsus, gradually and strongly decurved from base, broadly ridged or narrowly rounded, the tip of maxilla produced to form a moderately long unguis; gonys a little less than half as long as culmen, decidedly convex, ascending terminally, not prominent basally; maxillary tomium distinctly but not conspicuously sinuated, concave immediately behind unguis, convex in middle portion; mandibular tomium convex to near tip, where obtusely toothed at upper angle of the obliquely truncated tip of mandible; rictus on vertical line with or decidedly posterior to anterior angle of eye; cere rather long, its length on top equal to nearly half the length of culmen, slightly arched, flat (transversely) and relatively broad on top, its anterior outline distinctly sinuated (more or less convex in front of nostril, concave and receding below); nostril longitudinally or obliquely narrowly elliptical or with upper edge straight and lower edge convex, close to anterior margin of cere. Wing rather long, rounded, the longest primary exceeding distal secondary by a little less to a little more than one-

[56] The scutella of the planta tarsi are, however, often fused into an apparently continuous smooth surface.

[57] This character is not, of course, obvious in dried skins; but in freshly killed or alcoholic specimens it is exceedingly evident. The character, which is shared by the related African genus *Gymnogenys* Lesson, is an adaptive one, enabling the bird to withdraw from their subterranean burrows the frogs, crayfish, etc., which constitute its food.

third the length of wing; third, fourth, and fifth, or fourth, fifth, and sixth, primaries longest, the first shorter than tenth; inner webs of five outer primaries sinuated; proximal secondaries large and broad, extending to tip of eighth or ninth primary. Tail a little more than two-thirds to nearly three-fourths as long as wing, distinctly rounded, the rectrices relatively broad. Tarsus more than one-fourth as long as wing, about two-fifths as long as tail, slender, the acrotarsium and planta tarsi each with a single series of broad, transverse scutella (those of the latter often fused), the extreme upper portion of the acrotarsium feathered; middle to about two-fifths as long as tarsus or slightly less; outer toe much smaller and shorter than inner toe, falling slightly short of distal end of second phalanx of middle toe; the inner extending to much beyond middle of third phalanx of middle toe; hallux much shorter than inner toe; claws moderate in size and curvature, except that of outer toe, which is conspicuously smaller than that of middle toe, that of the hallux about as long as the digit (in *G. n. nigra*) or much shorter (in *G. gracilis*);[58] web between basal phalanges of outer and middle toes small but obvious.

Plumage and coloration.—Plumage full, soft, and blended; loral region rather sparsely feathered, the feathers with bristly shafts but without the usual long bristlelike tips; remiges (especially proximal secondaries) and rectrices relatively broad, the outer primaries (especially the first) more or less bowed or incurved; plumage of thighs very short. Adults mostly plain bluish gray, slate color or slate-blackish, with two or three bands (more or less broad) of white, buffy, or ochraceous across the otherwise black tail; underparts sometimes more or less barred with white. Young not conspicuously different from adults, but more variegated with white.

Range.—Tropical continental America, from southern Mexico to Argentina, Bolivia, and Peru. (Three species, with six races.)

Type.—*Geranospiza gracilis* (Temminck).

KEY TO THE NORTH AND MIDDLE AMERICAN FORMS OF GERANOSPIZA

a. Chin and throat largely white; rest of underparts with considerable white flecking.

b. Dark areas on underparts slightly brownish deep neutral gray (Darién and western Ecuador)_____**G. nigra balzarensis**, juv. (p. 522)

bb. Dark areas on underparts darker—chaetura-black (east and central Mexico to Panama)_____**G. nigra nigra**, juv. (p. 518)

aa. Chin and throat dark, uniform like rest of underparts.

b. Darker; general color of bird blackish with a faint slate bloom (eastern and central Mexico to Panama).

c. Under tail coverts blackish with narrow whitish tips.

G. nigra nigra, ad. (p. 518)

[58] In *G. gracilis*, which is very distinct from *G. caerulescens*, the claws appear to be much shorter, less strongly curved, and less acute.

cc. Under tail coverts dirty whitish broadly banded with black.
G. nigra nigra, imm. (p. 518)
bb. Lighter; general color between neutral gray and deep neutral gray.
c. Larger; wings over 330 mm. (Sonora)_____**G. nigra livens,** ad. (p 523)
cc. Smaller; wings under 300 mm. (Darien and western Ecuador).
G. nigra balzarensis,[59] ad. (p. 521)

GERANOSPIZA NIGRA NIGRA (DuBus)

BLACK FROG HAWK

Adult (sexes alike).—Entire head, back, rump, upper tail coverts, upper wing coverts, remiges, and entire underparts of body blackish slate to slate-black; the nape with a concealed white patch, the upper tail coverts basally banded with white, the feathers of the lower back whitish at extreme base; the five or six outermost primaries with a large white "window" on the inner web, at about the middle of their length, and with another one, more broken and freckled with blackish slate, basally; the inner primaries and the secondaries freckled with white on the basal portion of the inner web; feathers of the abdomen, flanks, and thighs, and under tail coverts very narrowly tipped with white, thus forming narrow whitish bars which are rather widely spaced except on the thighs, where they are close together; rectrices black tipped with whitish or grayish white and crossed by two broad white bands (20-28 mm. wide) which divide the tail length into thirds, the more distal of the white bands much suffused with deep neutral gray on the outer webs of the lateral rectrices; under wing coverts blackish slate to slate-black, tipped and banded narrowly with white; lores and cere plumbeous; bill black; iris crimson, tarsi, and toes orange.

Immature (sexes alike).—Similar to the adult, but the under tail coverts broadly white basally and broadly banded with whitish so that the blackish color is restricted to a few (usually three) broad bands.

Juvenal (sexes alike).—Similar to the adult, but with the chin, upper throat, forehead, and superciliary line whitish, the cheeks and anterior part of crown much streaked with the same; upperparts generally with a slight brownish cast, almost chaetura black, upper tail coverts tipped and banded with white; rectrices broadly white basally, the basal area almost confluent with the more proximal of the two white tail bands; breast and sides chaetura black, the feathers prominently tipped with white to tilleul buff; abdomen, flanks,

[59] A still paler species, *G. caerulescens* (Vieillot) occurs in northern South America from eastern Colombia to the Guianas and northern Brazil; another with two races, characterized by having the underparts barred with white, *G. g. gracilis* (Temminck) and *G. g. flexipes* Peters, inhabits South America from the southern bank of the Amazon to northern Argentina, Paraguay, and Bolivia.

and thighs banded tilleul buff and chaetura black, some specimens seeming more buffy than blackish and some the reverse; under tail coverts dirty buff subterminally crossed by a blackish band, and some of the feathers crossed by several such bands; remiges and under wing coverts as in adult; cere black; base of bill plumbeous; iris orange-red; tarsi and toes orange-yellow.

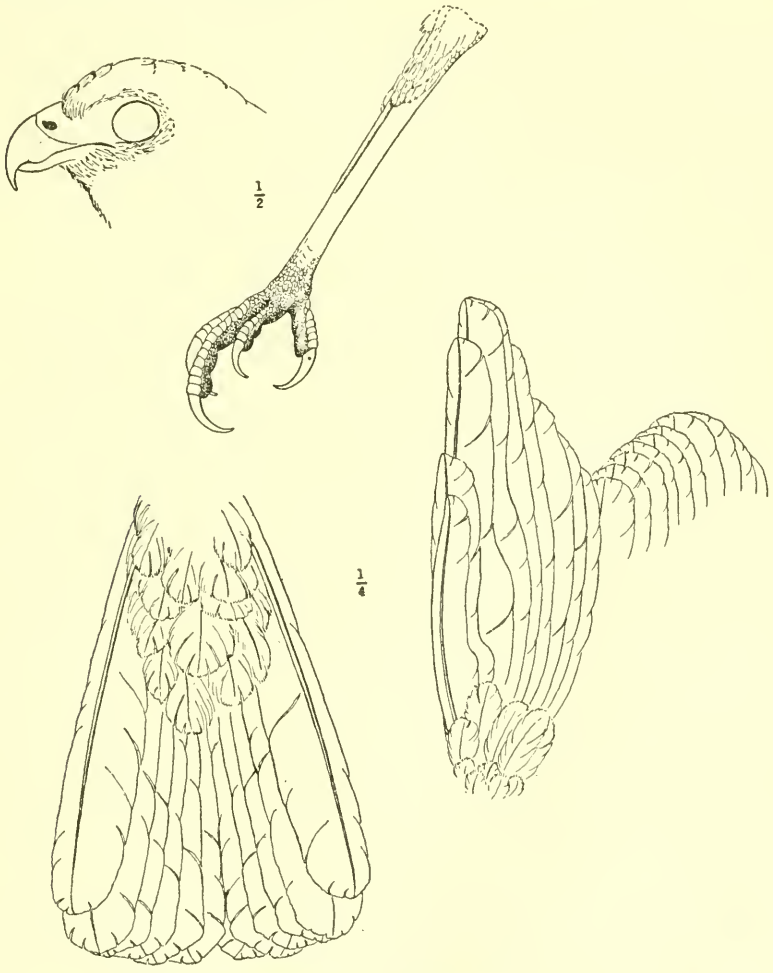

FIGURE 38.—*Geranospiza nigra.*

Natal down.—Not known.

Adult male. Wing 282–318 (302.2); tail 224–247 (238.7); culmen from cere 19.5–21 (20.1); tarsus 78–88 (84.2); middle toe without claw 32–37 (34.6 mm.).[60]

[60] Eight specimens from Mexico (Tamaulipas, Veracruz, and Mazatlán); Guatemala; Costa Rica; and El Salvador.

Adult female. Wing 315–340 (326.1); tail 233.5–254 (244.3); culmen from cere 20.1–23 (21.4); tarsus 85–98 (91.4); middle toe without claw 35–42 (38.7 mm.).[61]

Range.—Resident in heavy forest from northeastern and north-central Mexico (Tamaulipas—Caño Guiaves and Alta Mira; Veracruz—Córdoba; Yucatán—Peto, Meco Island, Buctzotz, Shkolak; Sinaloa—Mazatlán, Presidio de Mazatlán, Rinconadas; Colima—Tecolapa; Oaxaca—Santa Efigenia, Cacoprieto; Chiapas—Tonalá) south through British Honduras (Orange Walk); Guatemala (Dueñas; Savana Grande; Escuintla); Honduras (coastal belt; San Pedro); Nicaragua (Ocotal; Chinandega); Costa Rica (Pozo Azula de Pirris; Bolson; Guanacaste; Tenorio; Bebedero) to Panama east to the Canal Zone, but not to Darién (Mina de Chorcha, Veraguas; Lion Hill). Rather rare throughout its range.

Type locality.—Mexico.

Ischnoceles niger DuBus, Bull. Acad. Roy. Belg., xiv, pt. 2, 1847, 102 (Mexico; coll. Nat. Hist. Mus. Brussells); Esq. Orn., 1858, pl. 16.—Salvin, Proc. Zool. Soc. London, 1870, 216 (Mina de Chorcha, Veraguas, Panama).

Geranospiza niger Gray, Gen. Birds, i, 1849, 28.—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; distr.).

Geranospiza nigra Bonaparte, Consp. Gen. Av., i, 1850, 30.—Sclater and Salvin, Proc. Zool. Soc. London, 1870, 838 (coast of Honduras); Nom. Av. Neotr., 1873, 121 (Mexico to Veraguas).—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 39 (Santa Efigenia, Oaxaca; fresh colors of unfeathered parts).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1888, 127 (Pozo Azul de Pirris, Costa Rica).—Richmond, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Altamira, Tamaulipas).

Geranospizias niger Sharpe, Cat. Birds Brit. Mus., i, 1874, 82 (Mexico), 456 (Panama).—Gurney, List Diurn. Birds Prey, 1884, 26, part; Cat. Birds Prey, 1894, 19, part.—Sharpe, Hand-list, i, 1899, 247 in part (Mexico to Panama).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 52 (Mazatlán and Presidio de Mazatlán, Sinaloa; Tecolapa, Colima; Córdoba, Veracruz; Santa Efigenia and Cacoprieto, Oaxaca; Tonalá, Chiapas; Buctzotz, Peto, Shkolak, and Meco Island, Yucatán; Orange Walk, British Honduras; Dueñas, Savana Grande and Escuintla, Guatemala; San Pedro, Honduras; Chinandega and Ocotal, Nicaragua; Pozo Azul de Pirris, Costa Rica; Mina de Chorcha and Lion Hill, Panama).—Bangs, Auk, xxiv, 1907, 290 (Pozo del Río Grande, Costa Rica).—Carriker, Ann. Carnegie Mus., vi, 1910, 453 (Bolson, Tenorio, Guanacaste, and Bebedero, Costa Rica; habits).—Phillips, Auk, xxviii, 1911, 73 (Cañon Guiaves, Tamaulipas).—Reichenow, Die Vögel, i, 1913, 374.—Stone, Proc. Acad. Nat. Sci. Philadelphia 1918, 249 (Panama, Canal Zone).

Geranospizias nigra Salvin, Ibis, 1889, 375 (Meco Island, Yucatán).

Geranospiza niger niger Swann, Monogr. Birds Prey, i, 1925, 156 (monogr.).

Geranospiza nigra nigra Peters, Check-list Birds of World, i, 1931, 268.—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; San Pedro).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (Panama—heavy forest east to Canal Zone).—van Rossem, Birds El Salvador, 1938, 129 (distr. in El Salvador; habits; color of soft parts).—Sutton and Bur-

[61] Six specimens from Costa Rica and El Salvador.

LEIGH, Occ. Pap. Mus. Zool., Louisiana State Univ., No. 3, 1939, 27 (ne. Mexico; Tamaulipas: Guemes and Gómez Farias).—WETMORE, Proc. U. S. Nat. Mus., lxxxvii, 1939, 186, in text.—SUTTON and PETTINGILL, Auk, lix, 1942, 10 (Gómez Farias region, sw. Tamaulipas; spec.).

Geranospiza caerulescens var. *niger* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 84 (diagnosis).—HELLMAYR, Nov. Zool., xxiii, 1921, 178 (range).

Gernospiza caerulescens b. var. *niger* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 85 (syn.).

Geranospizias caerulescens nigra ZELEDÓN, Cat. Aves Costa Rica, 1882, 27; Proc. U. S. Nat. Mus., viii, 1885, 112 (Costa Rica).—LANTZ, Trans. Kansas Acad. Sci. for 1896–97 (1899), 219 (Rinconada, Sinaloa).

Geranospizia caerulescens niger BANGS and PENARD, Proc. Biol. Soc. Washington, xxxiv, 1921, 89, in text.

Geranospizias caerulescens niger SWANN, Synopt. List Accip., pt. 1, 1919, 17, part (s. Mexico to Panama); Synop. Accip., pt. 1, 1921, 28, part; pt. 4, 1922 (errata and add.).—STURGIS, Field Book Birds Panama Canal Zone, 1928, 131 (descr.; habits; Panama).—GRISCOM, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 151 (distr. in Guatemala; rare).

Geranospiza caerulescens nigra SASSI, Temminckia, iii, 1938, 298 (Costa Rica: Bebedero; spec.; colors of soft parts).

Geranospiza gracilis var. *niger* LAWRENCE, Mem. Boston Soc. Nat. Hist., ii, 1874, 299 (Mazatlán, Sinaloa; habits).

Ischnoscelis aterrimus LICHTENSTEIN, Nom. Mus. Berol., 1854, 4 (Mexico).

Geranospiza gracilis (not *Falco gracilis* Temminck, 1824) SCLATER, Proc. Zool. Soc. London, 1856, 285 (Córdoba, Veracruz).—GRAY, Hand-list, i, 1869, 31, No. 289, part.—CUBAS, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173 (common names, Mexico).

Geranospiza coerulescens (not *Sparvius caerulescens* Vieillot, 1817) SCLATER and SALVIN, Ibis, 1859, 218, part (s. Mexico).—LAWRENCE, Ann. Lyc. Nat. Hist. New York, vii, 1861, 289, part (Panama).

Geranospiza caerulescens SALVIN and SCLATER, Ibis, 1860, 44 (Dueñas, Guatemala; food; fresh colors of unfeathered parts).

Geranospizias caerulescens STONE, Proc. Acad. Nat. Sci. Philadelphia, 1890, 204 (Shkolak, Yucatán).

Nisus hemidactylus (not *Falco hemidactylus* Temminck) SCHLEGEL, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 53, part (monogr.).

GERANOSPIZA NIGRA BALZARENSIS Sclater

ECUADORIAN FROG HAWK

Adult (sexes alike).—Similar to the adult of *Geranospiza nigra nigra*, but generally paler, neutral gray to deep neutral gray, the narrow white bars on the abdomen, flanks, and thighs fewer, fainter, and sometimes obsolete; the under tail coverts mostly like the abdomen, but with a few that are pinkish buff crossed by two or three very broad bands of blackish; the more proximal of the two tail bands washed with pinkish buff.

Immature (sexes alike).—Similar to the adult, but with all or almost all the under tail coverts pinkish buff crossed by two or three very broad blackish bands.

Juvenal (sexes alike in all probability, but no female seen).—Practically identical with that of *Geranospiza nigra nigra*, but slightly paler on the dark areas, slightly brownish deep neutral gray instead of chaetura black.

Natal down.—Not known.

Adult male.—Wing 285–293; tail 233–236; culmen from cere 20.5–21; tarsus 83–86; middle toe without claw 33–33 mm. (2 specimens from Panama).

Adult female.—Wing 298; tail 235; culmen from cere 22; tarsus 89; middle toe without claw 37 mm. (1 specimen from Panama).

Range.—Resident in heavy forest in eastern Darién, Panama (Río Tuyra, Permé), and in western Ecuador, west of the Andes (Babahoyo; Puná Island; Vinces; Balzar Mountains; Peripa; Daule; Lechugal); not yet found in Colombia.

Type locality.—Balzar Mountains, Guayas Province, Ecuador.

Geranospiza gracilis (not *Falco gracilis* Temminck, 1821) Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 68, part (Puná Island, w. Ecuador).

Geranospiza caerulescens (not *Sparvius coerulescens* Vieillot, 1817) Sclater, Proc. Zool. Soc. London, 1860, 288 (Babahoyo, w. Ecuador; fresh colors of unfeathered parts).—Taczanowski, Orn. Pérou, i, 1884, 168; Proc. Zool. Soc. London, 1877, 329 (Lechugal, Ecuador).—Berlepsch, Proc. Zool. Soc. London, 1885, 19 (Babahoyo and Puná Island, w. Ecuador).

Geranospiza coerulescens (not *Sparvius coerulescens* Vieillot, 1817) Lawrence, Ann. Lyc. Nat. Hist., New York, vii, 1861, 289, in part (Panama).

Geranospizias caerulescens Sharpe, Cat. Birds Brit. Mus., i 1874, 81, part; Hand-List, i, 1899, 247, part (Panama).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 29 (Vinces and Peripa, Ecuador).—Chubb, Ibis, 1919, 280 (Peru; Marropon).

Geranospiza caerulescens var. *caerulescens* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 84, part (Panama; diagn.).

Geranospiza caerulescens a. var. *caerulescens* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 84, part (Panama; syn.).

Geranospizias niger Gurney, List Diurn. Birds Prey, 1884, 26, part; Cat. Birds Prey, 1894, 19, part.—Sharpe, Hand-list, i, 1899, 247, part (Panama).

Geranospizias caerulescens niger Swann, Synopt. List Accip., pt. 1, 1919, 17, part (Panama); Synop Accip., pt. 1, 1921, 28, part; pt. 4, 1922 (errata and add.).

Geranospiza niger balzarensis Sclater, Bull. Brit. Orn. Club, xxxviii, No. 231, 1918, 45 (Balzar Mountains; Guyas, w. Ecuador; type in coll. Brit. Mus.).—Swann, Monogr. Birds Prey, i, 1925, 157 (monogr.).

Geranospiza nigra balzarensis Peters, Check-list Birds of World, i, 1931, 268.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (extreme eastern Darién).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 186, in text.

Geranospizias caerulescens balzarensis Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., pt. 1, 1921, 27.—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 223 (Daule, Puná Island, Ecuador, and Río Tuyra, Panama; spec.).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 316 (Permé, Panama).

Geranospiza caerulescens balzarensis Gyldenstolpe, Kungl. Svenska Vetenskapsak. Handlngr., xxii, No. 3, 1945, 28, in text (c. Panama to sw. Ecuador).

GERANOSPIZA NIGRA LIVENS Bangs and Penard

Sonoran Frog Hawk

Adult (sexes alike).—Similar to that of *Geranospiza nigra balzarensis*, but larger and very slightly darker and the white tips of the feathers of the thighs and flanks more conspicuous.

Immature.—Unknown.

Juvenal.—Unknown.

Natal down.—Not known.

Adult male.—Wing 320.5–334 (327.1); tail 233–260; culmen from cere 19–; tarsus 88–91; middle toe without claw 33.5–34 mm.[62]

Adult female.—Wing 349; tail 242; culmen from cere 22; tarsus 97 mm.[62]

Range.—Northwestern Mexico in southern Sonora. Known only from the type locality, Alamos, and from Guirocoba and Tesia in the lower Mayo River Valley.

Type locality.—Alamos, southern Sonora.

Geranospizia caerulescens livens Bangs and Penard, Proc. Biol. Soc. Washington, xxxiv, 1921, 89 (Alamos, Sonora, nw. Mexico; orig. descr.; type in Mus. Comp. Zool.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 187 (type spec. in Mus. Comp. Zool.; crit.).—Peters, Check-list Birds of World, i, 1931, 268.

Geranospiza niger livens Swann, Monogr. Birds Prey, i, 1925, 157 (monogr.).

Geranospiza nigra livens Peters, Check-list Birds of World, i, 1931, 268.—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 186, in text.—van Rossem, Bull. Mus. Comp. Zool., lxxvii, 1934, 430 (Alamos); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 60 (s. Sonora).

Family PANDIONIDAE: Ospreys

> Pandiones ("group") Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 52 (includes *Elanoides*).

> Pandiones (suborder) Sharpe, Cat. Birds Brit. Mus., i, 1874, xiii, 448 (includes *Polioaëtus*); Review Rec. Att. Classif. Birds, 1891, 79; Hand-list, i, 1899, xxi, 279 (includes *Polioaëtus*).—Swann, Synopt. List Accip., pt. 4, 1920, 162 (includes *Polioaëtus*).

= Pandiones ("group") Ridgway, U. S. Geol. and Geogr. Surv. Terr., Bull. 4, ser. 2, 1875, 4.

= Pandioninae Sclater and Salvin, Nom. Av. Neotr., 1873, 118.—Barrows, Stand. Nat. Hist., iv, 1884, 273, in text.—Stejneger, Sci. Rec., ii, 1884.—American Ornithologists' Union, Check-list, 1886, 197.—Ridgway, Orn. Illinois, i, 1889, 426, 439.—Knowlton, Birds of World, 1909, 231.

= Pandionidae Gurney, List Diurn. Birds Prey, 1884, xv, 112.—Coues, Key North Amer. Birds, ed. 2, 1884, 498, 556.—Cope, Amer. Nat., xxiii, 1889, 872.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1897, iii, 39.—American Ornithologists' Union, Check-list, ed. 3., 1910, 168.—Dubois, Rev. Franç. Orn., Nos. 49, 50, 1913, (3).—Wetmore, Smiths. Misc. Coll., lxxxix, No. 13, 1934, 5; xcix, No. 4, 1940, 40; No. 7, 1940, 5.

[62] Three males, one female. Measurements of one of each sex chiefly *ex* Bangs and Penard, Proc. Biol. Soc. Washington, xxxiv, 1921, 89.

=Pandionidae Gadow, *in* Bronn's Thier-Reich, Vög., ii, 1891, 159, 300.—Oberholser, Outl. Classif. North Amer. Birds, 1905, 2.

Strictly piscivorous long-winged Accipitres with outer toe reversible, claws long, very strongly curved, of equal length, and contracted and rounded on under surface; tarsus very stout, covered with small rough, somewhat imbricated, projecting scales; under surface of toes covered with prominent spicules, and plumage of thighs very short, dense, and compact.

Skull essentially Buteonine (most resembling that of *Elanoides*) but descending process of lachrymal firmly and entirely blended with the ectethmoid and without any backwardly projecting frontal portion, and superciliary process of lachrymal exceedingly small and short (more so even than in *Elanoides*); anterior orifice of eustachian tube entirely closed; coracoids overlapping at sternum (as in Ardeidae, etc., but as in no other Accipitres); upper portion of tarsometatarsus with a bony ring, through which passes the common tendons of the toes (as in Striges); outer (fourth) toe reversible (as in Striges); claws very long and very strongly curved, acute, of equal length, contracted toward their lower surface, where smooth and rounded in transverse section; deep plantar tendons of type XI (Coraciine), blending completely (as in Striges, Bucerotidae, etc.), the area of fusion ossified; tendons of biceps split for nearly entire length; tensores patagii peculiar; cervical vertebrae, 15; caeca large; plumage in general dense, compact, and hard, that of upperparts with feathers distinctly outlined (squamate), that of underparts more blended, that of thighs very short, dense, and compact.[63]

In matters of pterylosis the Pandionidae agree with the Cathartidae, and not with either the Accipitridae or the Falconidae.[64]

The Pandionidae agree with the Accipitridae but differ from all the Falconidae in possession of the following characters.

Palate indirectly desmognathous; vomer not separated anteriorly, not closely applied to maxilla-palatines; squamosal prominence not strongly developed; ventral suface of maxilla without median bony

[63] It has been stated that *Pandion* lacks aftershafts to the contour feathers; but according to W. DeW. Miller (Bull. Amer. Mus. Nat. Hist., xxxiv, 1915, 139, 140) there is "a perfectly distinct aftershaft with stiff, elastic shaft, on feathers of the interscapulars, rump, and crissum," although "the plumage of the underparts in general has no aftershaft."

[64] Compton (Univ. California Publ. Zool., xlii, No. 3, 1938, 173–212) has amply demonstrated the remarkable similarity in the pterylosis of the Pandionidae and the Cathartidae. He suggests, on the strength of these data, that the Pandionidae should be placed in the suborder Cathartes. It seems better, however, in view of the closer agreement between the ospreys and the Falcones in other characters, to keep them in the latter suborder, but to place them as a separate family of that series, as is done here.

ridge; mandible without ramal vacuity; nasal bones very incompletely ossified, the nostril opening so as to fully expose the nasal septum and not enclosing a central bony tubercle; procoracoid small, articulating with scapula only, and widely separated from clavicle; thoracic vertebrae all free; no gap between first and second bronchial semirings; egg-shells with green translucence.

The Pandionidae are a small group of piscivorous diurnal "birds of prey" which differ externally from all others in their long, strongly curved and acute claws, which are not only of equal length (not graduated in size from that of the hallux, the largest, to that of the outer toe, the smallest) but instead of being broad and concave or grooved beneath are narrower, smooth, and rounded (in transverse section) on their under surface; in the heavy and peculiarly scaled tarsi, and the short, dense feathering of the thighs. The group is represented by a single, apparently monotypic, genus of nearly cosmopolitan range, though wanting in very cold regions. The ospreys feed exclusively on fishes and therefore frequent the larger rivers, lakes, and seashores.

Genus PANDION Savigny

Pandion Savigny, Descr. Égypte, livr. 1, i, 1809, 69, 95. (Type, by monotypy, *P. fluvialis* Savigny=*Falco haliaëtus* Linnaeus.)

Pandiun (typog. error) Lembeye, Mem. Real. Soc. Econ. Habana, ser. 2, vi, No. 5, 1849, 332.

Triorches Leach, Syst. Cat. Mam. Birds Brit. Mus., 1816, 10. (Type, by monotypy, *T. fluviales* Leach=*Falco haliaëtus* Linnaeus.)

Balbusardus Fleming, Hist. Brit. Anim., 1828, 51. (New name for *Pandion* Savigny.)

Balbuzardus (emendation) Rey, Syn. Eur. Brutvögel und Gäste, 1872, 172.

Ichthyaëtus (not *Ichthyiaëtus* Kaup, 1829) Sweeting, *in* N. Wood's Naturalist, ii, No. 12, Sept., 1837, 303. (Type, *I. piscivorus* Sweeting=*Falco haliaëtus* Linnaeus.)

Bill about half as long as head, the culmen somewhat arched basally and very strongly decurved, the tip of the maxilla produced into a relatively long and narrow unguis, the maxilla somewhat inflated laterally, its tomium sinuated (more or less convex in or slightly anterior to middle portion, more or less concave posteriorly); gonys slightly convex or nearly straight, ascending terminally, rather prominent basally through narrowing of mandibular rami; mandibular tomium strongly convex or arched, faintly notched or incised subterminally; cere rather narrow, its upper outline depressed more or less below level of highest point of culmen, its anterior outline nearly vertical for upper half (but slightly receding across base of culmen, where forming a slight concavity), then gradually receding below toward rictus; nostril oblique (its upper end the anterior one), narrow (almost slitlike) anteriorly beveled off to edge of cere, its posterior

margin slightly elevated or ridgelike, especially above. Wing long and pointed, the longest primaries exceeding longest (proximal) secondaries by nearly one-third the length of wing and extending beyond tip of tail; second or third (usually third) primary, from outside, longest, the first (outermost) longer than sixth, sometimes longer than fifth; second, third, and fourth (sometimes also fifth) primaries with outer webs sinuated, the three outermost with inner webs abruptly and deeply emarginated, the fourth slightly sinuated; longer primaries rigid, narrowed terminally, with tips subacuminate; primary coverts hard, stiff, and subacuminate. Tail less than half as long as wing; subtruncate or slightly double-rounded, the rectrices (12) rigid, but with rounded tips. Legs and feet relatively large and exceedingly strong, the very robust tarsus covered (except on upper anterior portion, where feathered) with small, rough, somewhat imbricated or projecting scales, those of the acrotarsium with lower edge projecting, those of the planta tarsi the reverse; middle toe (without claw) decidedly shorter than tarsus; lateral toes decidedly shorter than middle toe, the outer much longer than the inner; the hallux nearly as long as inner toe; terminal phalanx and part of second phalanx of all the toes with large transverse scutella, the remaining portion of upper surface covered with small scales, their under surface covered with prominent spicules; claws unusually long and very strongly curved (the curve of each forming about one-third of a circle), and all, except that of middle toe, as long as or longer than the digits, contracted in transverse width toward their under surface, which is narrow and smoothly rounded (in transverse section).[65]

Plumage and coloration.—Plumage exceedingly dense and compact, imbricated and oily, the loral region densely clothed with short feathers and without distinct bristles, the orbital region densely feathered up to eyelids and without trace of superciliary shield; anterior portion of pileum and nape with feathers elongated, acuminate, when erected forming short frontal and nuchal crests; feathers of thigh short, dense, and compact, this feathering extending over upper portion of acrotarsium where terminating in an acute angle; remiges rigid, longer primaries tapering terminally to their subacuminate tips, the primary coverts similarly rigid and acuminate. Head mostly white with a dusky lateral area; underparts white, the chest sometimes mottled or spotted with brown; upperparts dark grayish brown. Sexes essentially alike in coloration, and young differing mainly in having the feathers of upperparts margined terminally with white and buffy. Downy young with a conspicuous "pattern," thus differing from all (?) other Falconiformes.

[65] In *Pandion* the form of the claws, and their uniform size, is wholly unique among Falconiformes if not in the entire class Aves.

Nidification.—Nest variously situated (usually on trees or rocks near water), exceedingly bulky, composed largely of large sticks. Eggs two to four, broadly ovate, boldly blotched or spotted with chestnut, madder brown (sometimes blackish brown) and purplish gray on a buffy white to cinnamon-buff ground color.

Range.—Nearly cosmopolitan but absent in colder regions, New Zealand, and parts of Polynesia. (Monotypic, but represented by several geographic forms or subspecies.)

KEY TO THE AMERICAN FORMS OF PANDION

a. A solid heavy fuscous-black band from the eye to the sides of the breast.
b. Feathers of upperparts of the body dark brown, not edged with white.
c. Breast usually unmarked white like the rest of the underparts (sometimes with a few narrow streaks) (North America generally).
P. haliaetus carolinensis, ad. ♂ (p. 527)[66]
cc. Breast and lower throat with dusky brownish shaft streaks or marks.
P. haliaetus carolinensis, ad. ♀ (p. 529)
bb. Feathers of upperparts of body distinctly edged with white.
c. Breast with brownish streaks or marks.
P. haliaetus carolinensis, juv. ♀ (p. 529)
cc. Breast with no or very few and faint streaks or marks.
P. haliaetus carolinensis, juv. ♂ (p. 529)
aa. No solid heavy fuscous postocular band, but merely a few dark streaks.
b. Back dark clove brown, sepia, or fuscous; inner lesser upper wing coverts (along bend of wing) dark brown edged with ashy fulvous (Bahama Islands)----------**P. haliaetus ridgwayi**, ad. (p. 541)
bb. Back hair brown with a fulvous cast to grayish sepia; inner lesser upper wing coverts (along bend of wing) almost pure buffy white.
P. haliaetus ridgwayi, juv. (p. 541)

PANDION HALIAETUS CAROLINENSIS (Gmelin)

AMERICAN OSPREY

Adult male.—Forehead, crown, occiput, and nape white, washed to a varying degree with pale cinnamon-buff, the latter color often present as definite flecks on the hind crown, occiput, and nape; the anterior portion of the crown and the middle of the nape heavily marked with fuscous-black; lores bare, blackish; scapulars, interscapulars, entire back, rump, upper wing and tail coverts, and remiges varying from dark sepia to clove brown to fuscous-black, the lesser upper wing coverts and the interscapulars and anterior scapulars (in folded wing) generally slightly darker than the rest of the upperparts, all the feathers narrowly and faintly margined with fulvous; the long tips of the five outermost primaries generally darker, more fuscous-black, than the rest of the remiges; the primaries internally

[66] The European race *Pandion h. haliaetus* (Linnaeus) is very similar to *P. h. carolinensis* but has the lower throat and breast streaked with dusky in both sexes and is slightly smaller.

broadly edged with pale fulvous white, incompletely barred and mottled with dark sepia; rectrices clove brown to dusty sepia, all but the median pair whitish on the inner webs except for a broad brown tip and all the rectrices crossed by five to seven indistinct bands of slightly darker brown, these bands becoming distinct on the whitish inner webs of the rectrices (except the median pair); a broad fuscous-black postocular band extends from the hind end of the eye to the sides of the neck, where it connects with the transverse

FIGURE 39.—*Pandion haliaetus.*

arms of the similar color from the nape and extends down to the sides of the breast; chin, throat, breast, abdomen, sides, flanks, and under tail coverts white, sometimes tinged with pale buff; the feathers of the lower throat and breast occasionally with narrow dusky tawny to fuscous shaft streaks; under wing coverts whitish; cere and base of lower mandible bluish, rest of bill black; iris King's yellow; tarsi and toes livid bluish, claws black.

Adult female.—Similar to the adult male, but larger, and with the breast feathers always showing shaft streaks of wood brown to fuscous, the streaks generally somewhat spatulate terminally.

Juvenal male.—Similar to the adult male, but with both the forehead and crown streaked with fuscous to fuscous-black; all the feathers of the upperparts conspicuously bordered terminally with white or buffy white, and the rectrices crossed by nine narrow dark fuscous bands; underparts immaculate white; iris bright orange-red to dark brownish yellow; cere and upper mandible slate black; rictus and base of lower mandible pale blue; eyelids black; tarsi and toes greenish white; claws black.

Juvenal female.—Similar to the juvenal male, but with the breast feathers showing broad streaks or terminal arrow-shaped marks of wood brown to fuscous; the nape and crown and the underparts generally more tinged with pale cinnamon buff.

Natal down.—Dull sooty grayish or dusky above, tinged with rusty or fulvous, relieved by a broad lighter stripe down the middle of back and rump; a dusky stripe on sides of head, and other brownish stripes on the wings and back; distal part of wing pale, proximal part darker, more brownish; lower parts dull buffy white, the breast and thighs slightly more tawny.

Adult male.—Wing 462–498 (477.4); tail 199–220 (208.8); culmen from cere 31–34 (32); tarsus 58–63 (60); middle toe without claw 39–43 (41.8 mm.).[67]

Adult female.—Wing 488–512 (503.7); tail 212–240 (225.4); culmen from cere 32-36 (35); tarsus 58–68 (63.3); middle toe without claw 42–47 (44.9 mm.).[68]

Range.—Breeds from northwestern Alaska (Nulato; Kuskoquim River; Admiralty Island; Wrangell Harbor; Taku River; Sitka; Nogheling River; Kowak River, etc.); northwestern Mackenzie (lower Mackenzie River; Great Bear Lake; Fort Anderson; Fort Good Hope); Keewatin and Ungava (York Factory; Fort Churchill; Robinson Portage; Windy Lake; Grace River; Northwest River; etc.); northern Ontario (Fort Stevens, James Bay); central Quebec; southern Labrador; Newfoundland Labrador (uncommon; Sandwich Bay; St. Lewis Sound; Rigolet; Nachvak; Kaipokok Bay; Eagle River; Cape Charles; Jem Lane's Bay); and Newfoundland (Humber River); south through Canada and the United States to Baja California (both coasts; San Luis Archipelago); western Mexico (Tres Marías Island; Guadaloupe Island; Cedros Island); Guatemala (the Pacific

[67] Fifteen specimens from Alaska, British Columbia, California, New York, Delaware, Maryland, Mexico, Florida, and Puerto Rico.

[68] Eleven specimens from Alaska, California, Maryland, Virginia, Texas, Illinois, District of Columbia, Florida, and "Central America.

coast from San José to Soconusco); the Gulf States (southern Louisiana; Mississippi); and the Florida Keys (Marquesas Keys; Snipe Key; Boca Grande; Upper Matecumbe; Key West; Tortugas).

Winters from southern United States (coastal southern California (Farallon Island, Santa Cruz Island, San Diego, Colorado River, Death Valley); southern Arizona (Salt River); southern Texas (Rockport, Eagle Pass, Brownsville) and coastal Alabama; and Florida (where rare in the northern part of the State during the winter)), south through Mexico (Yucatán, Colima, Sinaloa, Guerrero, Oaxaca, etc.); Guatemala (abundant in winter); British Honduras (Belize); El Salvador (Lake Olomega, Puerto del Triunfo, La Libertad, Barra de Santiago); Nicaragua (San Juan del Sur, Great Corn Island); Honduras (Holbox and Ruatan Islands); Costa Rica (Guácimo); Panama (Farfán, Permé, Obaldia); Swan Island; to Colombia (Bonda, Santa Marta); Venezuela (Guárico, Apure, Caicara, Culata, Orinoco River); Trinidad; Cayenne; British Guiana; south to Brazil (Rio Belmonte; Matto Grosso); Ecuador (Chone); Peru (Santa Lucía); Paraguay (Lambaré); Argentina (Tucumán); and, casually, to Chile (two records—Puerto Montt and Paine, south of Santiago). Also to Cocos Island and the Galápagos Archipelago (Albemarle and Chatham Islands) and to the West Indies (Bahamas?, Cuba, Isle of Pines, Jamaica, Haiti, Dominican Republic (including Île à Vache and Catalinita Islands); Mono; Puerto Rico (rare); Vieques; Culebra; St. Croix; Tortola; Salt Island; St. Kitts; Antigua; Dominica; St. Lucia; Barbados; St. Vincent; Grenadines (Mustique, Bequia, Union, Prune, Carriacou); Saba; Guadeloupe; Grenada); also to Grand Cayman and to Bermuda.

Accidental in Hawaii (Oahu, Kauai, Niihau) and in Greenland.

Type locality.—No locality given=Carolina, *ex* references.

Falco americanus (not of Boddaert, 1783) Gmelin, Syst. Nat., i, pt. 1, 1788, 257.

Aquila americana Vieillot, Nouv. Dict. Hist. Nat., i, 1816, 233; Ois. Amér. Sept., i, 1807, 31, pl. 4.

Pandion americanus Vieillot, Gal. Ois., 1825, pl. 2.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 12.

Falco haliaëtos γ *carolinensis* Gmelin, Syst. Nat., i, pt. 1, 1788, 263 (Carolina= South Carolina; based on *Falco piscator antillarum* et *carolinensis* Brisson, Orn., p. 105; *Ascipiter piscatorius*, the Fishing Hawk, Catesby, Nat. Hist. Carolina, i, 1731, 2, pl. 2; etc.).

Falco carolinensis Daudin, Traité d'Orn., ii, 1800, 69.—Lesson, Traité d'Orn., 1831, 46.

Pandion carolinensis Audubon, Orn. Biogr., i, 1831, 415; Birds Amer., fol. ed. 1831, pl. 81.—Bonaparte, Geogr. and Comp. List, 1838, 3; Consp. Gen. Av., i, 1850, 16; Rev. Mag. Zool., vi, 1854, 532.—Gosse, Birds Jamaica, 1847, 19.—Cabanis, Journ. für Orn., 1854, p. lxxx (Cuba).—Brewer, North Amer. Ool., i, 1857, 53, pl. 3, figs. 33, 34.—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 44.—Maximilian, Journ. für Orn., 1858, 11 (spec.; Wabash River; Lehigh, Pa.; plum.).—Baird, Rep. U. S. and Mex.

Bound. Surv., ii, pt. 2, 1859, 4 (Colorado River, Calif.); Cat. North Amer. Birds, 1859, No. 44.—Newton, Ibis, 1859, 63 (St. Croix).—Sclater and Salvin, Ibis, 1859, 215 (Guatemala; Belize, Brit. Honduras).—Gundlach, Journ. für Orn., 1861, 322, 402 (Cuba; crit.); Rep. Fisico Nat. Cuba, i, 1865–66, 222; Journ. für Orn., 1871 (Cuba); 1874, 310 (Puerto Rico); 1878, 158, 163 (Puerto Rico); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 98 (Cuba); Contr. Orn. Cubana, "1876" (=1873), 39; Anal. Soc. Esp. Hist. Nat., vii, 1878, 158 (Puerto Rico); Orn. Cubana, 1895, 16.—Albrecht, Journ. für Orn., 1862, 204 (Jamaica).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1863, 2$\frac{\text{pp}}{\text{ff}}$(Panama); viii, 1866, 281 (vicinity New York City).—March, Proc. Acad. Nat. Sci. Philadelphia, xv, 1863, 152 (Jamaica).—Léotaud, Ois. Trinidad, 1866, 15.—Brown, Ibis, 1868, 418 (Vancouver Island).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 272 (Nulato and Sitka, Alaska).—Cooper, Orn. California, Land Birds, 1870, 454.—Grayson, Proc. Boston Soc. Nat. Hist., 1871, 268 (Tres Marías Islands, Tepic; breeding).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; summer res.; not common).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1874, 23 (lower Wabash Valley).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 134 (Camp Harney, Oreg.; rare; summer; nests Fort Lapwai, Idaho).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—Stahl, Ornis, iii, 1887, 450 (Porto Rico).—Gurney, Cat. Birds Prey, 1894, 30.—Sharpe, Hand-list, i, 1899, 279.—Grinnell, Pacific Coast Avif., No. 3, 1902, 34 (California; breeds Santa Barbara Islands; also locally along coast).—Brabourne and Chubb, Birds South Amer., i, 1912, 74 (Venezuela).—Chubb, Birds British Guiana, i, 1916, 281 (habits).—Delacour, Ibis, 1923, 145 (Guárico and Apure, Venezuela; abund. in Dec.).

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PANDION HALIAETUS RIDGWAYI Maynard

Bahama Osprey

Adult (sexes alike).—Similar to the adult male of *Pandion haliaetus carolinensis*, but smaller, paler, and with the head almost entirely white, only a few, if any, narrow dusky streaks on the crown and without the dark postocular band; lesser upper wing coverts conspicuously margined with grayish tawny-buff; head, neck, and entire underparts white, the last wholly immaculate, the first with a few narrow dusky streaks on forehead and the upper margin of auricular region streaked with brown; general color of upperparts deep hair brown to clove brown or fuscous (lighter than in *P. haliaetus carolinensis*), the feathers all margined with paler, these pale margins very narrow on back, scapulars, etc., much broader and buffy whitish on lesser wing coverts, which have conspicuous dusky shaft streaks; upper tail coverts with inner webs pale broccoli brown or isabella color, except at base, the outer webs white with one or more broad bars of pale brown; middle rectrices and outer webs of others light grayish brown with indistinct broad bars of slightly darker hue, the outermost rectrix white with two or three broad subterminal bars of pale brown; inner webs of all the rectrices white with pale brown bars on terminal portion and indications of other bars along shaft, the shafts also white; inner webs of primaries with expanded portion immaculate white; axillars and under wing coverts immaculate white, only those coverts along the edge of the wing having brown markings.

Juvenal (sexes alike).—Similar to the adult, but paler above, hair brown to grayish sepia; with much more buffy white on the upper wing coverts, the inner lesser ones along the bend of the wing almost pure buffy white, the rest of the upper wing coverts hair brown to pale fuscous broadly edged with buffy white; the feathers of the back and wings edged with tawny buffy white.

Natal down.—Unknown.

Adult male.—Wing 433–491.5 (465.2); tail 200–221 (208.1); culmen from cere 32.5–34 (33.5); tarsus 65–69 (68.1); middle toe without claw 45–50 (46.3 mm.)[69]

[69] Six specimens from Bahamas (Booby Cay, Inagua, Aucklin, Caicos, and West Caicos Islands).

Adult female.—Wing 455–483 (466.6); tail 206–220 (212); culmen from cere 35–38 (36); tarsus 68–77 (72.6); middle toe without claw 44–45 (44.7 mm.).[70]

Range.—Resident in the Bahama Islands (Andros, Aucklin, Cat, Fortune, Abaco, Long, Great Inagua, Ragged, Inagua, New Providence, Grand Caicos, East Caicos, West Caicos, and North Caicos Islands; Whale, Booby, Fish, and Water Cays) and the coasts of Yucatán (eastern Quintana Roo) and of northern British Honduras (Hicks Key, Ascension Bay, and near Boca de Paila). Once seen off the coast of Hispaniola (off Cape Engaños).

Type locality.—Andros Island, Bahamas.

Pandion carolinensis (not Falco carolinensis Gmelin) Bryant, Proc. Boston Soc. Nat. Hist., vii, 1859, 104 (Bahamas; habits).—Albrecht, Journ. für Orn., 1861, 50 (Bahamas).—Salvin, Ibis, 1864, 378, 385 (Saddle Cay, Half Moon Cay, and Tobacco Cay, off British Honduras).—Bonhote, Ibis, 1903, 297 (Andros Island, Bahamas, breeding; crit.; molt; habits).

Pandion haliaetus (not *Falco haliaëtus* Linnaeus) Cory, Birds Bahama Islands, 1880, 131 (Long Island; Whale Key; Ragged Islands); rev. ed., 1891, no paging.—Bonhote, Avicult. Mag., new ser., i, 1902, 59, 60 (Bahamas; habits; photo of nest at Spanish Wells, Andros).

Pandion haliaetus carolinensis Cory, List Birds West Indies, 1885 and rev. ed., 1886, 22, part (Bahamas); Auk, iv, 1887, 38, part (Bahamas); Birds West Indies, 1889, 196, part (Bahamas); Auk, viii, 1891, 297 (Caicos Islands, Bahamas), 351 (Inagua Island, Bahamas); Cat. West Ind. Birds, 1892, 99, part (New Providence, Aklin, North Caicos, Grand Caicos, East Caicos, and Great Inagua Islands, Bahamas).—Chapman, Amer. Nat., 1891, 530 (Bahamas; breeds).

?*Pandion haliaetus* subsp. Peters, Bull. Mus. Comp. Zool., lxix, 1929, 419 (Tela, Honduras; crit.).—Wetmore, Auk, lv, 1938, 52 (bone fragment; Crooked Island, Bahamas).

Pandion Ridgweir (typog. error) Maynard, Amer. Exchange and Mart. iii, Jan. 15, 1887, 33.

Pandion ridgwayi Maynard, Amer. Exchange and Mart, Feb. 5, 1887, 69 (Andros Island, Bahamas; coll. C. J. Maynard).

Pandion haliaetus ridgwayi Riley, Auk, xxii, 1905, 354 (Long Island, Bahamas); *in* Shattuck, Bahama Islands, 1905, 362 (New Providence; Andros; Water Cay; Long Island; Acklin, North Caicos; Great Caicos; East Caicos; Great Inagua; breeds).—Todd and Worthington, Ann. Carnegie Mus., vii, 1911, 451 (Cat, Great Inagua, Acklin, Fortune, and Abaco Islands, Bahamas).—Swann, Synop. Accip., pt. 4, 1922, 232.—Hartert, Vög. pal. Fauna, Nachtrag, i, 1923, 74 (a synonym of *P. h. carolinensis!*).—Griscom, Amer. Mus. Nov., No. 235, 1926, 13 (c. Quintana Roo, Yucatán).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 517 (rare; said to be common; Yucatán and Brit. Honduras coasts).—Peters, Check-list Birds of World, i, 1931, 275 (distr.).—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 117 (habits; distr.; etc.; Hispaniola).—Bond, Birds West Indies, 1936, 73, in text (Bahamas; descr.), footnote (Dominican Republic), 414; Check List Birds West Indies, 1940, 25 (Bahamas; distr.); ed. 2, 1945, 25.—

[70] Three specimens from Bahamas (Fish Cay, Booby Cay, and Caicos Island).

Bent, U. S. Nat. Mus. Bull. 167, 1937, 375, in text (Bahamas; coast of Yucatán and British Honduras).

Family FALCONIDAE: True Falcons, Laughing Falcons, Pygmy Falcons, Forest Falcons, and Caracaras

><Falconinae Swainson, Classif. Birds, ii, 1837, 212 (includes *Harpagus*, *Baza*, and *Aviceda*).—Bonaparte, Consp. Gen. Av., i, 1850, 22 (includes *Harpagus*); Rev. Mag. Zool., vi, 1854, 535 (includes *Harpagus*).—Kaup, *in* Jardine's Contr. Orn., 1850, 51 (includes *Harpagus*).

><Falconidae d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 113 (includes *Harpagus* and *Falconiae*).

<Falconinae Pycraft, Proc. Zool. Soc. London, 1902, 315 (excludes Polyborinae).

><Falcones Schlegel, Mus. Pays-Bas, ii, livr. 1, 1862, 2 (includes *Harpagus;* omits Herpetotherinae, Micrasturinae, and Polyborinae).

=Falconidae Hartert, Vög. pal. Fauna, ii, 1913, 1041.—Swann, Monogr. Birds Prey, i, 1925, 66.—Wetmore and Miller, Auk, xliii, 1926, 342.—Wetmore, Proc. U. S. Nat. Mus., lxxvi, art. 24, 1930, 3; Smiths. Misc. Coll., lxxxix, No. 13, 1934, 5; xcix, No. 7, 1940, 5.—Peters, Check List Birds of World, i, 1931, 276.—American Ornithologists' Union, Check-list, ed. 4, 1931, 73.

>Falconidae Reichenow, Die Vögel, i, 1913, 367 (includes the *Accipitridae* and *Falconidae* of the present work).—Stresemann, *in* Kükenthal and Krumbach, Handb. Zool., vii, 2nd half, 1934, 816 (includes the Falconidae of the present work and Aquilinae).

><Accipitrinae Sharp, Cat. Birds Brit. Mus., i, 1874, ix, 46 (*Micrastur* and a number of Accipitrine genera); Hand-list, i, 1899, xx, 244 (same genera).—Swann, Synopt. List Accip., pt. 2, 1919, 10 (same genera).

Nonaccipitrine Falcones with coracoids overlapping at sternum; upper portion of anterior face of tarsometatarsus without a bony ring; outer (fourth) toe not reversible; claws somewhat graduated in size, that of the hallux largest, that of the outer (fourth) toe smallest, the other two about equal; the bill conspicuously toothed and notched; tendons of biceps not split; caeca minute; the inner hypotarsial process forming a prominent crest extending along the midline of the posterior aspect of the tarsometatarsus for at least two-thirds of its length.

Palate directly desmognathous; vomer expanded anteriorly, closely applied to maxillopalatine process; lachrymal without superciliary plate; antorbital plate (prefrontal) largely developed, the outer border closely applied to or fusing with the lachrymal; squamosal prominence strongly developed; ventral surface of maxilla with a median bony ridge; mandible with ramal vacuity; nasal bones almost completely ossified, the nostril with a very small circular or slitlike aperture with a conspicuous central bony tubercle or else (in Micrasturinae) large, broadly oval, and without any long rim or obvious central tubercle; procoracoid large, articulating with the clavicle; thoracic vertebrae (except the penultimate) ankylosed (except in

Herpetotheres); spina intera sterni well developed; a prominent oval gap between the first and second bronchial semirings; egg shells with reddish yellow translucence.

The Falconidae, as here defined, includes the true falcons, the laughing falcons, pygmy falcons, forest falcons, and the caracaras. As in the Accipitridae, we find here such extremes as the swift flying, predacious duck hawks (genus *Falco*) and the rather sluggish scavengerlike caracaras (genus *Polyborus*); from the tiny pygmy falcons (subfamily Polihieracinae) to the sizable gyrfalcons (genus *Falco*). The subfamily groups of the Falconidae are, on the whole, more trenchantly characterized than are those of the Accipitridae. Like the latter family, the former is cosmopolitan in range.

KEY TO THE SUBFAMILIES OF FALCONIDAE

a. Nostril a small circular, or (in *Polyborus*) oblique-linear opening with bony margin and with or without a central tubercle; wing long (always decidedly longer than tail), pointed or only moderately rounded (outermost primary never shortest, usually much longer than innermost primary); posterior margin of auricular region with feathers normal; dorsal portion of spinal pteryla deeply divided, each branch dilated exteriorly.

b. Nostril with no tubercle or only a poorly developed one; tarsus slightly to much longer than middle toe, almost entirely unfeathered.

Polihieracinae (extralimital)[71]

bb. Nostril with a well-developed tubercle; tarsus hardly as long as, or shorter than, the middle toe, and feathered in its upper portion.

c. Hallux abbreviated (much shorter than lateral toes); tarsi covered with smooth, variously formed scales, the acrotarsium with a greater or lesser number of transverse scutellae; metasternum nearly truncated, entire or with a pair of oval foramina or else (in Polyborinae) very uneven, with two deep notches; eggshells with reddish yellow translucence.

d. Maxillary tomium with a prominent toothlike subterminal process and mandibular tomium with a corresponding notch; superciliary process of lachrymal elongated, narrow, extending nearly across orbit; posterior margin of metasternum entire, preceded by a pair of oval foramina; foramen supracoracoideum absent; spina interna sterni distinct, spiny; anterior angle of carina sterni projecting forward as far as level of spina externa; one or two (only) outer primaries emarginated much beyond middle portion of inner web.....**Falconinae** (p. 612)

dd. Maxillary tooth and mandibular notch indistinct or obsolete; superciliary process of lachrymal short, extending not more than halfway across orbit; posterior margin of metasternum deeply indented by a pair of notches; foramen supracoracoideum present; spina interna sterni indistinct, shelflike; anterior angle of carina sterni not projecting forward as far as level of spina externa; three or more outer

[71] Polihieracinae Peters, Check-List Birds of World, i, 1931, 281 (includes *Gampsonyx*, which is considered a genus of Accipitridae (Elaninae) in the present work).

primaries sinuated (not emarginated) at about (on outermost web anterior to) middle portion of inner web.....**Polyborinae** (p. 578)

cc. Hallux elongated (nearly as long as lateral toes); tarsi uniformly covered with thin, roughly imbricated small scales; metasternum truncated, entire, without notches or foramina; dorsal portion of spinal pteryla enlarged on all sides, undivided, and sparsely feathered.
Herpetotherinae (p. 548)

aa. Nostril a large broadly oval or subpyriform opening without bony rim or central tubercule; wing short (little if any longer, sometimes shorter, than tail), much rounded (outermost primary shorter than innermost); posterior margin of auricular region composed of differently formed, narrow, stiff, recurved feathers, forming a sort of "facial ruff" (as in Striges and buteonine genus *Circus*). (Dorsal pteryla essentially as in Herpetotherinae).
Micrasturinae (p. 558)

KEY TO THE NORTH AND MIDDLE AMERICAN GENERA AND SUBGENERA OF FALCONIDAE

a. Nostril large, broadly oval or subpyriform, without bony rim or central tubercle; wing short (little if any longer, sometimes shorter, than tail), much rounded (outermost primary shorter than innermost); posterior part of auriculars composed of narrow, stiff, recurved feathers, forming a sort of facial ruff.
Micrastur (p. 559)

aa. Nostril small, circular, or oblique—linear, with a bony margin and central tubercle; wing long (always decidedly longer than tail), pointed or moderately rounded (outermost primary never shortest, usually much longer than innermost one); no facial ruff.

b. Hallux elongated (nearly as long as lateral toes); tarsi uniformly covered with thin, roughly imbricated, small scales.....**Herpetotheres** (p. 550)

bb. Hallux abbreviated (much shorter than lateral toes); tarsi covered with smooth, variously formed scales, the acrotarsium with a greater or lesser number of transverse scutellae.

c. Maxillary tooth and mandibular notch indistinct or obsolete; three or more outer primaries sinuated (not emarginated) at about middle portion of inner web (much anterior to middle on outer web).

d. Tarsus one-half to two-thirds its length longer than middle toe without claw, the acrotarsium with a greater or lesser number of transverse scutella; outer toe but little longer than inner toe; inner webs of primaries deeply sinuated; habits more or less terrestrial, carnivorous, and sarcophagous.

e. Nostril linear, obliquely vertical (the lower end anterior to the upper), in upper anterior portion of cere, its tubercle concealed, the anterior outline of cere vertical and nearly straight; bill deep and compressed; occipital feathers elongated into a depressed crest.
Polyborus (p. 595)

ee. Nostril circular, in middle of cere, its central tubercle exposed; anterior outline of cere oblique, doubly curved; bill much less deep, little compressed.

f. Tomial tooth and notch nearly obsolete; malar region nearly if not quite naked, sometimes with the skin developed into a pendant wattle; outer toe not longer than inner toe; hallux much longer than basal phalanx of middle toe; claws slightly curved, very blunt; planta tarsi without distinct rows of quadrate

scales; upper tail coverts greatly developed, covering nearly basal two-thirds of tail; size larger (wing more than 330 mm.). **Phalcoboenus** (extralimital) [72]

ff. Tomial tooth and notch distinctly indicated; malar region normally feathered; outer toe decidedly longer than inner toe; hallux shorter than basal phalanx of middle toe; claws strongly curved, sharp; planta tarsi with two distinct rows of quadrate scutella; upper tail coverts normal, covering only about basal third of tail; size smaller (wing less than 300 mm).....**Milvago** (p. 588)

dd. Tarsus scarcely longer than middle toe without claw, the acrotarsium (as well as planta tarsi) without large scutella; outer toe very much longer than inner toe, which is but little longer than hallux; inner webs of primaries very shallowly sinuated; habits arboreal, insectivorous, and frugivorous.....**Daptrius** (p. 580)

cc. Maxillary tomium with a prominent toothlike subterminal process and mandibular tomium with a corresponding notch; one or two (only) outer primaries emarginated much beyond middle portion of inner web.

d. Tarsus nearly twice as long as middle toe, without claw, the latter exceeding longest lateral toe by much less than combined length of its last two phalanges; planta tarsi with two rows of large, well-defined scutella; longest primary exceeding distal secondary by only about one-third the length of wing; fourth, or third and fourth, primaries longest, the first (outermost) shorter than seventh; inner webs of four outer primaries emarginated, the emargination far from tips; tail graduated for more than one-fourth its length. **Spiziapteryx** (extralimital) [73]

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[72] **Phalcoboenus** d'Orbigny and Lafresnaye, Mag. de Zool., vii, 1837 (Synops. Avium, p. 2) (type, by monotypy, *P. montanus* d'Orbigny=*Aquila megaloptera* Meyer); d'Orbigny, Voy. Amér. Mérid., iv, 1837, (1834), Ois., pl. 2.—*Phalcobaenus* (emendation) d'Orbigny, Voy. Amér. Mérid., iv, 1835–44, Ois., 50.—*Phalcobenus* (emendation) Isador Geoffroy, Écho du Monde Savant, ii, 1836, 160.—*Phalcobaenus* (emendation) Bonaparte, Rev. Mag. Zool., ser. 2, ii, 1850, 479.—*Falcobaenus* (emendation) Lafresnaye, Rev. Zool., ii, 1839, 196.—*Falcoboenus* (emendation) Giebel, Thes. Orn., ii, 1874, 172.—*Phalocoboenus* (emendation) Fraser, Proc. Zool. Soc. London, 1843, 108.—*Phascobaenus* (emendation) Jardine and Selby, Illustr. Orn., new ser., No. 5, 1839, text to pl. 24.—*Oronertus* Heine, *in* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 272 (to replace *Phalcoboenus* on grounds of purism).—*Oronertes* (emendation) Sharpe, Zool. Record, xxvii, 1892, Aves, 35.—*Senex* (not of G. R. Gray, 1838) J. E. Gray, *in* Jardine and Selby, Illustr. Orn., new ser., No. 5, 1839, text to pl. 24 (type, by monotypy, *Falco australis* Gmelin).—*Aëtotriorchis* Kaup, Classif. Saug. Vög., 1844, 124; Isis, 1847, 357; *in* Jardine's Contr. Orn., 1850, 79 (type, *Morphnus novae-zealandiae* Cuvier=*Falco australis* Gmelin).—*Aetotriorchis* (emendation) Gray, Hand-list, i, 1869, 5.—*Aëtriorchis* (emendation) Sharpe, Cat. Birds Brit. Mus., i, 1874, 34.—*Helotriorchis* Reichenbach, Av. Syst. Nat., 1850, pl. 98 (type, *Falco australis* Gmelin).

[73] **Spiziapteryx** Kaup, Archiv für Naturg., 1851, Bd. 1, 89 (nomen nudum); Proc. Zool. Soc. London, 1851 (published Oct. 28, 1852), 43 (type, by monotypy, *Harpagus circumcinctus* Kaup).—*Spiziopteryx* (emendation) Bonaparte, Compt. Rend., xli, Oct. 1855, 652.—*Hemiierax* Burmeister, Reise La Plata Staaten, ii, 1861, 437 (type, by monotypy, *Harpagus circumcinctus* Kaup).—*Hemihierax* (emendation) Hartlaub, Archiv für Naturg., 1863, Bd. 2, 51 (southern South America (Argentina)). Monotypic.

dd. Tarsus much less than twice as long as middle toe (without claw), the latter exceeding longest lateral toe by less than half the length (curve) of culmen; planta tarsi covered with small scales, or at least without well-defined scutella; longest primaries exceeding distal secondaries by much more than one-third (sometimes by more than one-half) the length of wing; second primary much longer than fourth (usually longer than third), the first longer than fifth (sometimes longer than third); inner webs of not more than two outer primaries emarginated, the emargination subterminal; tail graduated for less (usually much less) than one-fifth its length--**Falco** (p. 614)

e. Tarsus covered (except on feathered upper portion) with small, more-or-less hexagonal or roundish scales, without any transverse scutellae on lower portion of acrotarsium or definite rows of larger hexagonal scales elsewhere.

f. Inner toe, without claw, extending to or beyond penultimate articulation of middle toe; second primary with inner web more or less distinctly emarginated subterminally; first (outermost) primary shorter than third, sometimes shorter than fourth; longest primaries exceeding distal secondaries by little if any more (sometimes less) than half the length of wing; emargination on inner web of first primary falling short of tip of fifth primary (usually about opposite tip of sixth primary); tail more than half as long as wing.

g. Tarsus with more than upper half densely feathered anteriorly and laterally; size very large (wing 339–420 mm.).

Falco, subgenus **Hierofalco** (p. 631)

gg. Tarsus with less than upper half feathered; smaller (wing usually much less than 330 mm.)--**Falco**, subgenus **Gennaia** (p. 621)

ff. Inner toe, without claw, falling short of penultimate articulation of middle toe; second primary without emargination on inner web; first (outermost) primary much longer than third (sometimes as long as second), its emargination beyond tip of fifth primary; longest primaries exceeding distal secondaries by more than half the length of wing.

g. Nostril relatively much smaller; orbital region less extensively bare; tip of tail truncate or slightly emarginate, the rectrices relatively narrower proximally and broader distally (less tapering); tarsus with less than one-third of anterior portion feathered; young not materially different in coloration from adults; smaller (wing 180–252 mm.).

Falco, subgenus **Neofalco** (p. 670)

gg. Nostril relatively much larger; orbital region more extensively (and more completely) bare; tip of tail distinctly rounded, the rectrices relatively broader proximally and narrower distally (more tapering); tarsus with more than upper third of anterior portion feathered; young conspicuously different in coloration from adults; larger (wing 285–375 mm.).[74]

Falco, subgenus **Rhynchodon** (p. 648)

ee. Tarsus covered with larger scales, the larger ones arranged in one or more definite rows or longitudinal series.

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[74] In American species only; an Old World species, probably referable to this subgenus, is smaller, with wing sometimes as short as 231 mm.

f. Inner toe, without claw, falling short of penultimate articulation of middle toe; middle toe, without claw, longer than tarsus; hallux, without claw, more than one-third as long as tarsus.

g. First (outermost) primary, only, with inner web emarginated; longest primaries exceeding distal secondaries by much more than half the length of wing; second primary longest, the first equal to or longer than third; lower portion of acrotarsium without transverse scutella. (Sexes alike in coloration and young very different from adults).

Falco, subgenus **Falco** (extralimital)

gg. First (outermost) and second primaries emarginated on inner webs; longest primaries exceeding distal secondaries by very little if any more than half the length of wing; third primary longest or else very nearly as long as second, the first not longer than fourth, usually shorter; lower portion of acrotarsium with transverse scutella.

h. Length of cere on top equal to more than one-third the length (curve) of culmen; depth of bill at base greater than distance from nostril to tip of maxilla; distance from bend of wing to tip of longest primary covert decidedly less than from latter point to tip of longest primary; basal phalanx of middle toe with transverse scutella (continuous with those on lower portion of tarsus); sexes alike in coloration, young distinctly but not conspicuously different from adults----------**Falco**, subgenus **Rhynchofalco** (p. 681)

hh. Length of cere on top less than one-third the length (curve) of culmen; depth of bill at base less than distance from nostril to tip of maxilla; distance from bend of wing to tip of longest primary covert little if any less than from same point to tip of longest primary; basal phalanx of middle toe with small roundish scales; sexes conspicuously different in coloration, the young (of both sexes) similar to adult female----------**Falco**, subgenus **Aesalon** (p. 690)

ff. Inner toe, without claw, extending to beyond penultimate phalanx of middle toe; middle toe, without claw, shorter than tarsus; hallux, without claw, less than one-third as long as tarsus. (Sexes very different in coloration, but young essentially like adults)----------**Falco**, subgenus **Tinnunculus** (p. 715)

Subfamily HERPETOTHERINAE: Laughing Falcons

>Herpetotheræ LESSON, Écho du Monde Savant, 9e ann., vii, sér, 2, No. 3, Jan. 12, 1843, col. 61 (includes, besides *Herpetotheres*, "*Physcta*," *Asturina*, *Chondrohierax*, *Odontriorchis*, *Rostrhamus*, *Gampsonyx*, *Pernis*, *Baza*, and *Aviceda*!).

=Herpetotherinae SCLATER and SALVIN, Nom. Av. Neotr., 1873, 122.—SALVIN and GODMAN, Biol. Centr.-Amer., iii, 1901, 111.—KNOWLTON, Birds of World, 1909, 212, 225, in text.

=Herpetothereæ RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 52; Orn. Illinois, i, 1889, 427.

=Herpetotheres RIDGWAY, U. S. Geol. and Geogr. Surv. Terr., Bull 4, ser. 2, June 10, 1875, 4, 5, 6; No. 6, 1876, 452.

>Herpetotherinae PETERS, Check-list Birds of World, i, 1931, 276 (includes *Micrastur*).

Large-headed, stoutly built Falcones without tomial tooth or notch; relatively large circular bony-rimmed nostril without central tubercle; tarsus and greater part of toes uniformly covered with small, rough, imbricated scales; hallux nearly as long as lateral toes; and with a conspicuous bushy erectile decumbent crest of lanceolate rigid-shafted feathers covering entire pileum.

General aspect of skull stongly falconine, but superofrontal width relatively much greater than in Falconinae and Polyborinae and palatine surface correspondingly narrow; interorbital width of frontal equal to more than half the length of skull from base of maxillary; superciliary process of lachrymal greatly developed, extending nearly across orbit, its width equal to more than one-third its length; width of conjoined palatines equal to less than twice the width of superciliary process of lachrymal and less than half their own length; maxillary tomium without trace of tooth; mandible very broad and strong; the rami with a large longitudinally oblong-ovate, posteriorly acute vacuity, the tomium without trace of subterminal notch. Nostril relatively larger than in Falconinae and Polyborinae, circular or vertically broadly oval, its bony rim much elevated on posterior side, without obvious central tubercle. Sternum with greatest width equal to about two-thirds its length, its posterior margin truncate or faintly concave, entire, without trace of notches or foramina; carina sterni about equal in length to scapula, much longer than coracoids or furcula; spina externa very broad and deep.[75]

Larynx with intrinsic muscles attached to first bronchial semiring only.

Pterylosis (according to Nitzsch) as in Falconinae, but with dorsal stem of spinal pteryla enlarged on all sides, undivided, and sparsely feathered to the caudal pit, thence diminished and continued as a narrow band along the caudal vertebrae to the oil gland; lumbar tract distinct but short and separated from the crural tracts; inferior tract narrow in all its parts, the inner branch indistinct at end of gular portion, the outer branch completely separated from the pectoral stem, somewhat broader than the main stem itself, and distinct from it; ventral portion of main stem removed far outward, running along the margin, and terminating laterally in front of the anus.

This subfamily is peculiar to continental Tropical America and contains, so far as known, a single monotypic genus, *Herpetotheres*.

From its external appearance this remarkable form conveys little suspicion of its near relationship to the falcons. The plumage has the softness or laxity of that of the more weakly organized buteonine forms, as *Harpagus* and certain genera of Perninae, while the scutella-

[75] Only the skull, and sternum, with attached scapulars, coracoids, and furcula, of this remarkable form have been examined.

tion of the feet resembles closely that of the buteonine genera *Circaëtus* and *Spilornis*, with which, on this account, *Herpetotheres* has often been associated. The last-mentioned character is, however, apparently purely adaptive (teleological), the feeding habits of these forms being similar, snakes constituting an important, if not the principal, part of their diet. Although so very different in general aspect from the true falcons, this serpent-eating falcon is, when aroused or in action, said to exhibit a spirit, irritability, and dash second to that of no other bird of prey.

Genus HERPETOTHERES Vieillot

(?) *Physeta* Vieillot, Analyse, 1816, 24. (Type, by monotypy, *Falco sufflator* Gmelin (=*F. cachinnans* Linnaeus?).)

Physta (emendation) Gray, Hand-list, i, 1869, 31.

Herpetotheres Vieillot, Nouv. Dict. Hist. Nat., xviii, 1817, 317. (Type, by monotypy, *Falco cachinnans* Linnaeus.)

Herpethotheres (emendation) Vieillot, Tabl. Encycl. Méth., iii, 1823, 1247.

Herpethoteres (emendation) Lafresnaye, Rev. Zool., ii, 1839, 196.

Cachinna Fleming, Philos.-Zool., ii, 1822, 236. (Type, by monotypy, *Falco cachinnans* Linnaeus.)

Macagua Lesson, Traité d'Orn., 1831, 68. (Type, as designated by d'Orbigny, 1839, *Falco cachinnans* Linnaeus.)

Bill relatively short and deep (its depth at anterior edge of cere nearly equal to chord of culmen), compressed, the culmen strongly decurved from base, the tip of maxilla strongly but not acutely uncinate, but not preceded by a tomial tooth, the tomium regularly and strongly concave anteriorly and with a slight convexity near middle portion; gonys strongly convex basally, strongly ascending terminally, the tip of mandible truncated, the tomium sinuated (slightly but distinctly concave anteriorly, convex posteriorly), but without trace of subterminal notch; cere very short, the upper half of its anterior outline nearly vertical, the lower portion (between one-fourth and one-fifth) also nearly vertical, but much posterior to the upper portion (nearly on vertical line with posterior edge of nostril). Nostril relatively large, circular, close to anterior edge of cere, without obvious central tubercle, its bony rim elevated superiorly and posteriorly. Wing moderately long, its tip rounded (third to fifth primary, from outside, longest, the first equal to or longer than ninth), the inner webs of outer four distinctly sinuated, the sinuation disappearing on the sixth. Tail a little shorter than wing, strongly rounded, the rectrices (12) rather soft, tapering slightly toward their rounded tips. Tarsus between one-fourth and one-fifth as long as wing, very stout, covered nearly uniformly with small, rough, imbricated, more or less hexagonal scales, the toes similarly scaled except distally, where the small scales are replaced by broad transverse scutella (mostly confined to terminal

phalanges); middle toe, without claw, about three-fourths as long as tarsus, the lateral toes much shorter, the outer slightly longer than the inner; hallux very stout, nearly as long as inner toe; web between basal phalanges well developed; under surface of toes distinctly but not conspicuously spiculated; claws normal, of moderate length and curve, their edges unusually sharp.

Plumage and coloration.—Plumage full and soft, except on head, the feathers of pileum much elongated, lanceolate, with rigid shafts, forming a bushy decumbent but erectile crest; lores densely bristled, the loral and frontal bristles invading the cere so as to almost cover it, especially on upper surface, where they grow to the anterior edge; eyelids with very strong bristlelike lashes; superciliary shield bare, prominent; primaries and rectrices rather soft and obtuse, the former straight (not bowed). Head, neck, and underparts buffy (more or less deep) or buffy whitish, the first with a large spectaclelike patch of black on each side, involving the posterior half of lores, orbital, suborbital, auricular, and malar regions, and extending round nape or upper hindneck, forming a broad, abruptly defined collar, leaving an equally well-defined buffy or whitish collar below it (across lower hindneck); general color of upperparts blackish brown, the basal portion of primaries variegated with buffy or whitish, the tail crossed by six to eight bands of the same. Sexes alike in coloration and young not materially different from adults.

Nidification.—Unknown.

Range.—Continental tropical America, from central Mexico to Bolivia, Paraguay, and western Colombia. (Monotypic.)

KEY TO THE RACES OF HERPETOTHERES CACHINNANS

a. Back darker, dark clove brown to fuscous-black.

b. Underparts darker—pale cinnamon-buff; also top of head and longer upper tail coverts of this color (Nicaragua and El Salvador south to Ecuador and n. Brazil).

Herpetotheres cachinnans cachinnans (p. 555)

bb. Underparts and the top of head and longer upper tail coverts paler—cartridge buff to ivory yellow (Mexico, south to Guatemala and Honduras)..... **Herpetotheres cachinnans chapmani** (p. 552)

aa. Back paler—sepia (Amazonia to Argentina).

Herpetotheres cachinnans queribundus (extralimital)[76]

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[76] **Astur cachinnans** (not *Falco cachinnans* Linnaeus) Spix, Av. Bras., i, 1824, 8, pl. iiia (Bahia; Minas Geraes; Pará).—(?) *Macagua cachinnans* d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 96 (Bolivia; habits); d'Orbigny and Lafresnaye, Synop. Avium, 1839, 5 (Bolivia).—*Herpetotheres cachinnans* Bonaparte, Consp. Gen. Av., i, 1850, 3, part; Rev. Mag. Zool., vi, 1854, 532, part; Burmeister, Syst. Übers. Th. Bras., ii, 1856, 90; Sclater and Salvin, Proc. Zool. Soc. London, 1867, 590 (Mexiana Island, Brazil); Nom. Av. Neotr., 1873, 122, part (Brazil); (?) 1879, 638 (provinces of Moxos, Santa Cruz de la Sierra,

HERPETOTHERES CACHINNANS CHAPMANI Bangs and Penard

MEXICAN LAUGHING FALCON

Adult (sexes alike).—Forehead, crown, occiput, hind neck, sides of neck, chin, throat, breast, abdomen, sides, flanks, thighs, and under tail coverts, and longer upper tail coverts whitish suffused with cartridge buff to ivory yellow and to pale yellow-orange, the feathers of the forehead, crown, and occiput with black shaft streaks, those of the thighs usually slightly darker than the abdominal ones and occasionally sparsely spotted with very small clay-colored marks, the feathers of the breast usually averaging darker than those of the throat or abdomen; posterior half of the lores, the circumocular area, cheeks, auriculars, and a dorsal extension of the latter forming a well-marked nuchal band, black, the collar or nuchal band leaving an equally well defined and much broader whitish buff collar posterior to it; scapulars, interscapulars, upper wing coverts, back, rump, and shorter upper tail coverts dark fuscous to fuscous-black, edged (in fresh plumage) with vinaceous-cinnamon; remiges externally dark fuscous, narrowly tipped (in fresh plumage) with vinaceous-cinnamon and very narrowly edged with the same on the outer web, all but the terminal portion of the inner webs and basal part of outer webs largely ochraceous-salmon, blackening toward the tips of the feathers, and paling to pale ochraceous-buff basally, the inner webs crossed by six dark fuscous bands which narrow toward their inner ends; these dark bands incomplete on the secondaries where they fail to reach

and Chiquitos, Bolivia); Pelzeln, Orn. Bras., Abth., i, 1868, 7; Abth. 4, 1870, 398; Gray, Hand-list, i, 1869, 31, No. 298, part (Bolivia); Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 52 (Brazil); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 137, part (Brazil); Sharpe, Cat. Birds Brit. Mus., i, 1874, 278, part (Mexiana Island); Hand-list, i, 1899, 264, part (South America, part); Forbes, Ibis, 1881, 353 (Aguas Bellas, Sertoês, Brazil); Gurney, List Diurn. Birds Prey, 1884, 14, part; Cat. Birds Prey, 1894, 18, part; Berlepsch, Journ. für Orn., 1887, 122 (Paraguay); Kerr, Ibis, 1892, 142 (lower Río Pilcomayo, Argentina; habits; food; notes); Salvadori, Boll. Mus. Zool. Torino, xii, 1897, 29 (Caiza, s. Bolivia); xv, 1900, 13 (Urucum, Matto Grosso, sw. Brazil); Holmberg, Segundo Censo Argent., 1898, 507; Salvin and Godman, Biol. Centr.-Amer., Aves, i, 1901, 112, part (Brazil; Paraguay); Ihering, Rev. Mus. Paulista, vi, 1904, 338 (Paraguay); Hagmann, Zool. Jahrb., 1907, 22 (Mexiana Island); Ihering and Ihering, Aves Brazil, 1907, 95 (Goyaz; Matto Grosso; Santarém; Pará; Bahia; Minas Gerais); Reiser, Denkw. Mat.-Nat. Kaiserl. Akad. Wiss. Wien, 1910, 89 (Barrinha, Rio Preto, ne. Brazil); Dabbene, Orn. Argentina, 1910, 247 (Misiones; Chaco; Pilcomaya); Bol. Soc. Physis Buenos Aires, i, 1913, 303 (Chaco, Argentina); Brabourne and Chubb, Birds South Amer., i, 1912, 71, part (Paraguay; Bolivia?); Bertoni, Fauna Paraguaya, 1913, 43.—*Herpetotheres cachinnans queribundus* Bangs and Penard, Bull. Mus. Comp. Zool., lxiii, 1919, 23 (Pernambuco, ne. Brazil; coll. Mus. Comp. Zool.); Swann, Synop. Accip., pt. 3, 1922, 124 (Pernambuco, Brazil, to Paraguay); Monogr. Birds Prey, ii, 1933, 128 (monogr.); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 98; Peters, Check-list Birds of World, i, 1931, 276.

the inner margin of the feathers; rectrices black crossed by six to eight sharply defined bands of very pale light buff to pale warm buff, these bands generally darker on the lateral rectrices and paler on the median ones; tail narrow basally, pale light buff and tipped with the same; under wing coverts light ochraceous-buff to light ochraceous-salmon, either immaculate or somewhat spotted with dark ochraceous-tawny; iris reddish brown to dark brown; cere and base of lower

FIGURE 40.—*Herpetotheres cachinnans.*

mandible yellowish to orange-yellow; bill black; tarsi and toes dull yellowish white; claws blackish.

Juvenal (sexes alike).—Similar to adult, but with the thighs freely spotted with semitriangular or rounded clay-color to tawny-olive marks; the under wing coverts more abundantly spotted with dark ochraceous-tawny to sepia; the edges of the dark feathers of the upperparts more conspicuous and slightly paler vinaceous-cinnamon; rectrices crossed by only five pale bands (exclusive of the pale tips),

the bands reduced to large spots not reaching the edges of the webs in the median pair of rectrices; iris dark brown; cere and base of lower mandible lemon-yellow; orbital space dusky; tarsi and toes dull brownish gray; claws dusky black.

Natal down.—Body immaculate, light brownish buff, near pale clay color, distinctly paler on the chin and throat and deepening to between clay color and Sayal brown on the crown, back, and wings; head with black facial mask and collar around the nape just as in the adult, but with no white spot on the lower eyelids. The down very dense and soft, more like that of a duckling than a hawk. Soft parts apparently as in adults except that the cere and base of the bill are brownish in dried skins (yellowish in life ?); iris said to be dark.

Adult male.—Wing 262–307 (278.3); tail 187–232 (212.7); culmen from the cere 22.8–27 (24.9); tarsus 58–77 (65.4); middle toe without the claw 36–45 (41.2 mm.).[77]

Adult female.—Wing 255–305 (279.6); tail 188–242 (216.9); culmen from the cere 22.0–26.4 (24.2); tarsus 59–65.8 (62.0); middle toe without the claw 39–45 (41.7 mm.).[78]

Range.—Resident from western and south-central Mexico (Sonora–Guirocoba; Sinaloa–Mazatlán; Veracruz—Playa Vicente, Tres Zapotes, Paso Nuevo; Tabasco—Santa Ana, Frontera; Tehuantepec; Guerrero; Oaxaca; Jalisco—Beltran, Zapotlán, Volcán de Colima; Jalapa; Yucatán—Chichen Itzá; Quintana Roo; Puebla Chietla; Campeche; and Chiapas—Aguacate, Soconusco), south through Guatemala (Quiriguá, Hacienda California, Finca El Cipres, Progreso, near Puerto Barrios) to Honduras (Yoro) and to El Salvador, where it intergrades with the nominate race.

Type locality.—Santa Lucia, Río Hondo, Quintana Roo, Mexico.

Herpetotheres cachinnans (not *Falco cachinnans* Linnaeus) Bonaparte, Proc. Zool. Soc. London, 1837, 114 (Guatemala).—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 17, part (Mexico); Hand-list, i, 1869, 31, No. 298, part (Mexico).—Sclater, Proc. Zool. Soc. London, 1857, 201 (Jalapa, Vera Cruz); 1859, 368 (Jalapa), 389 (Playa Vicente, Veracruz);—Moore, Proc. Zool. Soc. London, 1859, 52 (Omoa, Honduras; habits).—Sclater and Salvin, Ibis, 1859, 215 (Guatemala); Proc. Zool. Soc. London, 1870, 838 (coast Honduras); Nom. Av. Neotr., 1873, 122, part (Central America, part).—Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 278, part (Mexico, Honduras); Hand-list, i, 1899, 264, part.—Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 300 (Mazatlán, Sinaloa; habits; notes); U. S. Nat. Mus. Bull. 4, 1875, 41 (Tapana and Tehuantepec City, Oaxaca; habits; fresh colors of unfeathered parts).—Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 2, 1876, 137, part (Mazatlán; Tehuantepec).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Cubas, Cuadro Geogr., Estadístico,

[77] Twenty-three specimens from Mexico, Guatemala, and Honduras.

[78] Thirteen specimens from Mexico and Guatemala.

Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 166 (common names; Mexico).—Gurney, List Diurn. Birds Prey, 1884, 14, part.—Ferrari-Perez, Proc. U. S. Nat. Mus., ix, 1886, 168 (Chietla; Puebla; Santa Ana, Veracruz).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126, part (Costa Rica).—Beristain and Laurencio, Mem. Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 224 (Mexico).—Chapman, Bull. Amer. Mus. Nat. Hist., viii, 1896, 286 (Chichen Itzá, Yucatán; habits; notes).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 112, part (w. and s. Sonora; Mazatlán, Sinaloa; Beltran and Zapotlan, Jalisco; Volcán de Colima; Chietla, Puebla; Santa Ana, Jalapa, Vega de Casadores, and Playa Vicente, Veracruz; Chimalapa, Tapana, and Tehuantepec City, Oaxaca; Teapa, Tabasco; Tonala, Chiapas; Chichen Itzá, Yucatán; British Honduras; Chimalpa, Choctuen, Escuintla, and Retalhuleu, Guatemala; Omoa and San Pedro, Honduras).—Cole, Bull. Mus. Comp. Zool., l, 1906, 121 (Chichen Itzá, Yucatán; notes).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 84 (Los Amates and Mazatenango, Guatemala).—Reichenow, Die Vögel, i, 1913, 374.—van Tyne, Misc. Publ. Mus. Zool. Univ. Michigan, No. 27, 1935, 17 (seen at Uaxactun, Petén, Guatemala).—del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas; Mapastepec; spec.).—Sutton and Pettingill, Auk, lix, 1942, 10 (Gomez Farias region, sw. Tamaulipas).—Sheffler and van Rossem, Auk, lxi, 1944, 146 (Guirocoba; Sonora; nesting).

Herpetothere cachinnans Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 ("tierra caliente," Veracruz).

Herpetotheres cachinans Peters, Auk, xxx, 1913, 371 (Santa Lucia and Camp Mengel, Quintana Roo, Mexico).

Herpetotheres cachinnans chapmani Bangs and Penard, Bull.Mus. Comp. Zool., lxii, 1918, 37 (Quintana Roo, se. Mexico; coll. Mus. Comp. Zool.).—Swann, Synopt. List Accip., pt. 3, 1920, 75; Synop. Accip., pt. 3, 1922, 124 (Tepic, Tamaulipas, and Tabasco to n. Nicaragua).—Griscom, Amer. Mus. Nov., No. 235, 1926, 12 (e. Quintana Roo, Yucatán).—?Peters, Bull. Mus. Comp. Zool., lxix, 1929, 418 (Progreso, Honduras).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 192 (type specimen in Mus. Comp. Zool.).—Peters, Check-list Birds of World, i, 1931, 276, part.—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 300 (Honduras; Cantarranas, Omoa, Progreso, and San Pedro).—Dickey and van Rossem, Birds El Salvador, 1938, 131 (El Salvador; records; crit.; spec.; habits).—van Rossem, Trans. San Diego Soc. Nat. Hist., ix, 1938, No. 4, 10 in text (crit.).—Sutton and Burleigh, Wils. Bull., lii, 1940, 223, in text (Mexico: Tamazunchale; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 203 (Pacaitun, Campeche; spec.).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 29 (Tabasco).

Herpetotheres cachinnans cachinnans Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 159 (Guatemala; distr.).

Herpetotheres cachinnans excubitor van Rossem, Trans. San Diego Soc. Nat. Hist., ix. 1938, 10 (Volcán de Colima, s. Jalisco; crit.; distr.); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 61 (Sonora; resident tropical zone; crit.).—Wetmore, Proc. U. S. Nat. Mus., xcv, 1944, 36, 37, in text (crit.).

HERPETOTHERES CACHINNANS CACHINNANS (Linnaeus)

Southern Laughing Falcon

Adult (sexes alike).—Similar to that of *Herpetotheres cachinnans chapmani*, but underparts darker, nearly uniform pale cinnamon-

buff; top of head and longer upper tail coverts also cinnamon-buff; dark fuscous of *chapmani* replaced by fuscous-black; size smaller; tail with five or six incomplete light bands.

Juvenal (sexes alike).—Similar to that of *Herpetotheres cachinnans chapmani*, but blacker on the back and upper surface of wings; more cinnamon-buff on head and underparts; the pale bands in the tail buffier and smaller (reduced to large spots on all but the outermost pair of rectrices).

Natal down.—Similar to that of *Herpetotheres cachinnans chapmani.*

Adult male.—Wing 254–294 (267.1); tail 176–215 (201.6); culmen from cere 22.5–27 (24.5); tarsus 57.8–71 (60.3); middle toe without claw 42–44 (42.7 mm.).[79]

Adult female.—Wing 247–290 (267.3); tail 184–220 (201.7); culmen from cere 22–26 (23.8); tarsus 55.7–66 (60.2); middle toe without claw 40–44 (41.4 mm.).[80]

Range.—Resident from southern Central America from Nicaragua and El Salvador south through Costa Rica to Panama and Colombia (Alto Bonito; Antioquia; San José; Barbacoas), to western Ecuador (Babahoyo; Esmeraldas; Paramba), Peru, Venezuela, Surinam, and northern Brazil. In El Salvador this race intergrades with *chapmani*, but on the whole the birds of that country seem better placed with *chapmani.*

Type locality.—South America; restricted to Surinam.

Falco cachinnans Linnaeus, Syst. Nat., ed. 10, i, 1758, 90 (South America; *ex* Rolander); ed. 12, i, 1766, 128.—Gmelin, Syst. Nat., i, 1788, 276.—Latham, Index Orn., i, 1790, 37.—Daudin, Traité d'Orn., ii, 1800, 115.—Shaw, Gen. Zool., vii, pt. 1, 1809, 156.

Astur cachinnans Cuvier, Règne Anim., i, 1817, 320.—Schlegel, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 26, part (monogr.); No. 36, livr. 10, 1873, 68, part.

Herpetotheres cachinans Vieillot, Nouv. Dict. Hist. Nat., xviii, 1817, 317, pl. E 24, fig. 1.

Herpetotheres cachinnans Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 738.—Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 17, part (Brit. Guiana); Hand-list, i, 1869, 21, No. 298, part.—Bonaparte, Consp. Gen. Av., i, 1850, 30, part; Rev. Mag. Zool., vi, 1854, 532, part.—Sclater, Proc. Zool. Soc. London, 1860, 288 (Babahoyo, w. Ecuador; food; fresh colors of unfeathered parts), 298 (Esmeraldas, w. Ecuador); Ibis, 1873, 373 (Chontales, Nicaragua).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 289 (Panama Railway); ix, 1868, 132 (Costa Rica).—Sclater and Salvin, Proc. Zool. Soc. London, 1868, 629 (San Esteban, Venezuela); (?) 1873, 302 (Yurimaguas, e. Peru); Nom. Av. Neotr., 1873, 122, part; Proc. Zool. Soc. London, 1879, 541 (Remédios, Cauca, Colombia).—Frantzius, Journ. für Orn., 1869, 367 (Costa Rica).—Salvin, Proc. Zool. Soc. London, 1870, 214

[79] Twenty-nine specimens from Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Venezuela, Surinam, and Peru.

[80] Twenty-seven specimens from Nicaragua, Costa Rica, Panama, Venezuela, Colombia, and Ecuador.

(Boquete de Chitra and Calobre, Veraguas, Panama); Ibis, 1886, 77 (Brit. Guiana).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 52, part (Cayenne); Bull. U. S. Geogr. and Geol. Surv. Terr., ser. 2, No. 2, 1876, 137, part (Panama: Calobre, Veraguas; Costa Rica: Talamanca; South American localities in syn.).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 278, part (Brit. Guiana); Hand-list, i, 1899, 264, part.—Taczanowski, Proc. Zool. Soc. London, 1877, 329 (Peru); Orn. Pérou, i, 1884, 145 (Peru).—Gurney, List Diurn. Birds Prey, 1884, 14, part; Cat. Birds Prey, 1894, 18, part.—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 389 (Sucuyá, sw. Nicaragua).—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Babahoyo and Esmeraldas, w. Ecuador).—Rovirosa, La Naturaleza, vii, 1887, 377 (Tabasco: Río Macuspana).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Costa Rica).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 531 (Río Escondido, Nicaragua; habits).—Hartert, Nov. Zool., v, 1898, 502 (Paramba, nw. Ecuador, 3,500 feet).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 112, part (Nicaragua, Costa Rica, Panama, Colombia, etc.).—Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 570 (crit); (?) Nov. Zool., xvii, 1910, 413 (Borba, Rio Madeira, Brazil).—Berlepsch, Nov. Zool., xv, 1908, 290 (Cayenne).—Penard and Penard, Vog. Guyana, i, 1908, 417 (Surinam, habits).—(?) Snethlage, Journ. für Orn., 1908, 22 (Rio Purús, w. Brazil); Bol. Mus. Goeldi, v, 1908, 67 (Rio Purús).—Carriker, Ann. Carnegie Mus., vi, 1910, 466 (Guacimo, Río Sicsola, and El Hogar, Costa Rica; habits, notes).—Brabourne and Chubb, Birds South America, i, 1912, 71, part.—Chubb, Birds British Guiana, i, 1916, 261 (habits; Brit. Guiana).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone).

Herpetotheres cachinnans cachinnans Chapman, Bull. Amer. Mus. Nat. Hist., xxxiv, 1915, 638, in text; xxxvi, 1917, 248 (Río Frío, Honda, Villavicencio, and Barrigou, Cauca, and Magdalena Valleys, e. Colombia); lv, 1926, 236 (Huilca, Ecuador).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 37 (Paramaribo, Surinam; crit.).—Swann, Synopt. List Accip., pt. 3, 1920, 75; Synop. Accip., pt. 3, 1922, 123 (Guianas, Venezuela, Colombia, Ecuador); Monogr. Birds Prey, pt. 3, 1933, 127 (monogr.).—Hellmayr, Nov. Zool., xxviii, 1921, 185 (crit.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 157 (Bonda, Neguange, Don Diego, and Fundación, Santa Marta, Colombia; crit.).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 450 (Almirante, Panama; spec.; molt.).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 138 (Panama; descr.; habits).—Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 308 (Almirante and Cricamola, Panama); Check-list Birds World, i, 1931, 276.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (Panama; w. half and Caribbean slope of e. half).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 49 (Paracote, Azuero Peninsula, Panama; spec.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 84 (Brazil; distr.).—Sassi, Temminckia, iii, 1938, 301 (Costa Rica, Jiménez and Bebedero, spec.; crit.).—Dugand, Rev. Acad. Colomb., iii, 1940, 220 (Magdalena—Caribbean area of Colombia; fairly common).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 115 (Lower Amazonia; Boca do Igarape; Piaba; Obidos; spec.).

Herpetotheres cachinnans fulvescens Chapman, Bull. Amer. Mus. Nat. Hist., xxxiv, 1915, 638 (Alta Bonita, w. slope of w. Andes, Antioquia, Colombia; alt. 1,500 feet; coll. Amer. Mus. Nat. Hist.); xxxvi, 1917, 249 (Alta Bonita, San José, and Barbacoas, w. Colombia; diagn.); lv, 1926, 236 (Río de Oro, Puná Island, Bucay, and Chongocito, Ecuador).—Cherrie, Bull. Brooklyn Inst.

Sci., ii, 1916, 345 (Orinoco Delta, Venezuela).—Bangs and Pennard, Bull. Mus. Comp. Zool., lxii, 1918, 37, in text.—Bangs and Noble, Auk, xxxv, 1918, 444, in text.—Hellmayr, Nov. Zool., xxviii, 1921, 185.—Swann, Synopt. List Accip., pt. 3, 1920, 75; Synop. Accip., pt. 3, 1922, 124 (w. Ecuador; w. Colombia; Panama to s. Nicaragua).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 301 (Panama: Pacific slope of Darién).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 50, in text.

Herpetotheres cachinnans maestus Bangs and Noble, Auk, xxxv, 1918, 444 (Bellavista, nw. Peru; coll. Mus. Comp. Zool.).—Swann, Synop. Accip., pt. 3, 1922, 124 (nw. Peru); Monogr. Birds of Prey, ii, 1933, 129 (monogr.).—Peters, Check-list Birds of World, i, 1931, 276.

Herpetotheres cachinnans chapmani (not Bangs and Pennard) Griscom, Bull. Mus. Comp. Zool., lxix, 1929, 158 (Cana, Darién, Panama; crit.).—Peters, Check-list Birds of World, i, 1931, 276, part (Canal Zone).

Cachinna cachinnans Fleming, Philos. Zool., ii, 1822, 236.

Daedalion cachinnans Vigors, Zool. Journ., i, 1824, 338.

Macagua cachinnans Lesson, Traité d'Orn., 1831, 63.—Hellmayr, Nov. Zool., xxviii, 1921, 185.

Circaētus (*Herpetotheres*) *cachinnans* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260, part (South America).

Circaëtus cachinnans Kaup, Isis, 1847, 258 (monogr.), 368, 373, 375, 380; *in* Jardine's Contr. Orn., 1850, 71.

Herpetotheres cachicamus (typ. err.) Menegaux, Bull. Mus. Hist. Nat. Paris, 1904, 108 (Cayenne).

Falco sufflator Linnaeus, Syst. Nat., ed. 10, i, 1758, 90 (Surinam; based on Rolander).—Latham, Index Orn., i, 1790, 37.

Cachinna herpetotheres Gray, Gen. Birds, i, 1844, 15, pl. 7, fig. 4.

Subfamily Micrasturinae: Forest Falcons

=Micrastureae Ridgway, Proc. Boston Soc. Nat Hist., xvi, 1873, 51; Orn. Illinois, i, 1889, 427.

=Micrastures Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 4, June 10, 1875, 4, 5, 6; Bull. 6, 1876, 452.

=Micrasturinae Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 107.—Knowlton, Birds of World, 1909, 212, 224 in text.

>Herpetotherinae Peters, Check-list Birds of World, i, 1931, 276 (includes *Herpetotheres* and *Micrastur*).

Slender hawklike Falcones with short, rounded, concave wings, relatively long, much rounded or graduated tail (nearly equal to, sometimes longer than, wing), long, slender tarsus and middle toe, as in the Buteonine genus *Accipiter*, but with the orbital region bare, the auricular region margined posteriorly by a line of small, firm, imbricated or squamated feathers, forming a sort of "facial ruff," as in the buteonine genus *Circus* and in Striges, and scutellation of tarsi very different.

Nostril a relatively large roundish, broadly oval or subpyriform opening, without bony rim or obvious central tubercle; orbital region bare. Wing short and rounded, very concave beneath, the primaries bowed, the outermost primary shorter than the innermost, the third

to sixth (from outside) longest. Tail long and much rounded (nearly as long as to longer than wing). Tarsus long and rather slender, more than twice as long as middle toe without claw, without transverse scutella either before or behind (if with large scutella on acrotarsium or planta tarsi, or on both, the scutella longer longitudinally than transversely and arranged in double series).

Although resembling the buteonine genus *Accipiter* in aspect and, to a great extent, in habits, the Micrasturinae are essentially falcons structurally, possessing, as they do, all the characters common to the superfamily Falcones. They agree with the Falconinae and Herpetotherinae in the much elongated superciliary process of the lachrymal (broader than in the former, narrower than in the latter); with the Falconinae in the character of the posterior end of the sternum (nearly truncate, with two oval foramina), and with both Falconinae and Herpetotherinae, together with the Polyborinae in the produced scapular process of the coracoids, the almost completely ossified nasal bones, the strongly ridged inferior surface of the supermaxillary, and in other osteological characters, in all of which the Micrasturinae differ strongly from the Accipitrinae and the Buteoninae.

In addition to the "facial ruff," which recalls that of *Circus* and the Striges, the Micrasturinae further resemble the latter in the enlarged ear aperture (of oval form and vertical position), dense, antrorse hairlike bristles which cover and nearly conceal the cere, the soft, downy character of the inner webs of the remiges, and the dichromatic character of some species, which exhibit a rufescent or erythristic phase of plumage. It is probable that these resemblances are purely adaptive, being connected in some way with their habits.

Nitzsch describes the pterylosis of the Micrasturinae as having the lumbar tract absent; dorsal portion of spinal tract in the form of an elongated ellipse, but contracted into a band immediately in front of the oil gland (but even there still broad), consisting exclusively of scattered feathers, which become stronger posteriorly. The eyelids are said to be without distinct lashes.

This family contains a single genus with four species, restricted to tropical continental America.

Genus MICRASTUR Gray

Brachypterus (not of Kugel, 1794) Lesson, Complément des Oeuvres de Buffon, vii, 1836, 113. (Type, by original designation, *Falco brachypterus* Temminck.)

Brachypternus (emendation) Bonaparte, Rev. Mag. Zool., sér. 2, ii, 1850, 489.

Brachypteryx (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 30.

Carnifex (not of Sundevall, 1836) Lesson, Écho du Monde Savant, sér. 2, vi, 1842, 1084. (Type, by monotypy, *C. naso* Lesson = *Falco brachypterus* Temminck = *Sparvius melanoleucus* Vieillot.)

Carnifer (emendation) Gray, Gen. Birds, i, 1849, 28.

Micrastur Gray, List Gen. Birds, ed. 2, 1841, 6; Gen. Birds, i, 1844, 28, pl. 10, fig. 1. (Type, *Falco brachypterus* Temminck=*Sparvius melanoleucus* Vieillot.)

Climacocercus Cabanis, *in* Wiegmann's Arch. für Naturg., 1844, Bd. 1, 265. (Type, by original designation, *Falco brachypterus* Temminck=*Sparvius melanoleucus* Vieillot.)

Climacourus (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 30.

Rhyncomegas Bonaparte, Compt. Rend., xxxvii, 1853, 809. (Type, by monotypy, *Falco brachypterus* Temminck=*Sparvius melanoleucus* Vieillot.)

Rhynchomegus (emendation) Bonaparte, Ann. Sci. Nat., sér. 4, i, 1854, 111; Rev. et Mag. Zool., vi, 1854, 537.

Rhyncomegus (emendation) Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1874, 73.

Nothierax Sundevall, Öfv. Vet.-Akad. Förh., xxxi, No. 2, 1875 (1874), 25. (Type, by monotypy, *Falco xanthothorax* Temminck=*Sparvius ruficollis* Vieillot.)

Thrasyaccipiter Bertoni, Aves Nuevas Paraguay, 1901, 164. (Type, by monotypy, *T. seminocturnis* Bertoni=*Sparvius ruficollis* Vieillot.)

Falconine hawks (Falcones) with the general aspect of *Accipiter*, but differing (besides osteologically) in scutellation of tarsi and in possessing a "facial ruff" (as in *Circus*); size variable, from rather small to rather large (wing 165–298 mm., tail 160–331 mm.).

Bill relatively short, deep, and compressed, its depth at base greater than distance from anterior edge of nostrils to tip of maxilla and much greater than its width at same point; culmen very strongly and regularly decurved, the tip of maxilla strongly and sharply uncinate; maxillary tomium more or less distinctly sinuate; mandibular tomium slightly but distinctly convex, the tip of mandible truncated, presenting, in front view, a conspicuous V-shaped notch; gonys distinctly (more or less strongly) convex, rather prominent basally, through contraction of mandibular rami; cere with anterior outline very strongly sinuate, convex in front of nostril, thence strongly receding below toward rictus, the portion above nostril also, but to a far less extent, producing a more or less concave outline across base of culmen. Nostril moderate in size to rather large, elliptically oval, ovate, or nearly circular, its longer axis more or less oblique, close to anterior edge of cere, without definite anterior margin (except as formed by that of cere), without central bony tubercle. Wing relatively short, much rounded, longest primaries exceeding secondaries by (usually very much) less than length of tarsus; fourth, fifth, and sixth primaries (from outside) longest and subequal, the first (outermost) shorter than distal secondaries; inner webs of outer five or six very slightly sinuated, the outer webs of second to seventh or eighth slightly sinuated. Tail decidedly shorter to slightly longer than wing, strongly rounded, the graduation sometimes nearly equal to length of tarsus, but usually much less; rectrices (12) rather broad, with rounded tips. Tarsus a little less to slightly more than one-third as long as wing, the extreme upper portion feathered in front, covered with large longi-

tudinal, irregularly hexagonal, scales, these arranged in double series on both acrotarsium and planta tarsi,[81] the anterior and posterior series sometimes in close juxtaposition, sometimes separated (at least on outer side) by a space (more or less wide) either covered with small scales or without scales; middle toe, without claw, about one-half as long as tarsus, the lateral toes decidedly shorter, either the outer or the inner slightly exceeding the other in length, the hallux much shorter than either of the lateral toes, and, together with inner toe, very stout; claws relatively large, strongly curved, and acute, that of the hallux largest and as long as or longer than its digit.

Plumage and coloration.—Plumage soft and rather lax, especially on underparts; edges of primaries (especially distal portion) soft and semidecomposed (much as in Striges); longer auricular plumes and feathers along posterior margin of auricular region very rigid, with rounded, imbricated tips, forming a "facial ruff," as in Striges and Buteonine genus *Circus*; whole orbital region, including the long superciliary shield, naked; lores naked, but rather sparsely covered with antrorse fine hairlike bristles, which also cover whole of cere posterior to nostrils, those of upper portion of cere with tips strongly curved backward; feathers of pileum rather long, forming, when erected, a bushy crest. Adults with upperparts plain slate-gray, hair brown, sepia, or rufous, the tail darker tipped and crossed by one to five bands or bars of whitish; underparts whitish or buffy, immaculate, more or less barred with dusky, or with a few crescentic bars of pale grayish on sides of breast and blackish shaft lines on flanks, et cetera. Young more brownish above, the underparts white or buffy with or without broad bars of dusky. Sexes essentially alike, but young distinctly different in coloration from adults.

Nidification.—Eggs unknown; the nest said to be built in tall trees.

Range.—Southern Mexico to Paraguay, southern Brazil, etc. (Four species.)

KEY TO THE SPECIES AND SUBSPECIES OF MICRASTUR

a. Size larger, wing more than 200 mm. in length.

b. Wing under 230 mm. in length; upperparts dark slate gray, or dark brown.

c. Dorsal surface of tail crossed by three narrow white bands, each of which encloses a mottled or uniform band of deep mouse gray (Costa Rica to western Colombia).

d. With brownish or dark grayish brown upperparts.

M. mirandollei extimus, juv. (p. 573)

dd. With the upperparts dark slate-gray.

M. mirandollei extimus, ad. (p. 572)

[81] I am unable to find any difference in the scutellation of the tarsi between the larger and smaller species, such as is alleged to exist by Swann (Synopt. List Accip., part 2, 1919, 15, 16). Even if such differences did exist, and the two groups were generically separable, the name *Climacocercus* Cabanis is not available for the smaller species, since its type is expressly stated by Cabanis to be *Falco brachypterus* Temminck (=*Sparvius melanoleucus* Vieillot).

cc. Dorsal surface of tail crossed by three fairly broad pale grayish brown bands ..... **M. mirandollei mirandollei** (extralimital) [82]

bb. Wing over 230 mm.; upperparts black or blackish brown.

c. Back and upper side of folded wing conspicuously barred with fulvous tawny.

d. Wing length over 250 mm.

e. Dark color of upperparts of body and head fuscous or darker (Mexico to South America)..... **M. semitorquatus naso**, juv. (p. 568)

ee. Dark color of upperparts of body and head paler, sepia or lighter. **M. semitorquatus semitorquatus**, juv. (extralimital) [83]

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[82] **Micrastur mirandollei mirandollei.**—*Astur mirandollei* Schlegel, Mus. Pays-Bays, ii, No. 4, livr. 1, 1862, 27 (Surinam); No. 36, livr. 10, 1873, 68; Nederl. Tijdschr., i, 1863, 130.—*Micrastur mirandollii* Selater and Salvin, Proc. Zool. Soc. London, 1867, 753 (Chyavetas, e. Peru), 759 (Chyavetas, e. Peru; crit.); 1869, 365 (monogr.); 1873, 303 (Chyavetas, e. Peru); Nom. Av. Neotr., 1873, 120; Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 485, part (Amazonia); Ibis, 1876, 3, part; Salvin, Ibis, 1886, 501 (Carimang, British Guiana).—*Micrastur mirandollei* Pelzeln, Orn. Bras., Abth. 1, 1868, 7; Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 51 (Brazil), 77 (monogr.); Sharpe, Cat. Birds Brit. Mus., i, 1874, 76 (Guiana, Amazonia); Taczanowski, Proc. Zool. Soc. London, 1882, 47 (Yurimaguas, e. Peru); Orn. Pérou, i, 1884, 159; Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 109, part, pl. 64 (Amazonia, Guiana); Hellmayr, Nov. Zool., xvii, 1910, 409 (Allianca, Brazil; crit.); Snethlage, Cat. Aves Amazonicas, 1914, 126 (Rio Guamá, Brazil; spec.); Chubb, Birds Brit. Guiana, i, 1916, 221 (British Guiana); Swann, Synopt. List Accip., pt. 1, 1919, 15, part; Synop. Accip., pt. 1, 1921, 25, part: Monogr. Birds Prey, i, 1925, 144, part (monogr.); Peters, Check-list Birds of World, i, 1931, 277, part; Pinto, Rev. Mus. Paulista xxii, 1938, 85 (Brazil; distr.); xxiii, 1938, 504 (Amazonas, Brazil; São Gabriel; spec.; meas.), 547 (Manacapuru; spec.); (?) Nicéforo María, Caldasia, iv, 1947, 320 (Colombia; crit.).—*Micrastur mirandollei mirandollei* Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxi, 1941, 116 (Lower Amazonia; Rio Acará, Villa Braga; spec.); Gyldenstolpe, Kungl. Svenska Vet. Akad. Handl., xxii, No. 3, 1945, 30 (Rio Juruá, w. Brazil; spec.; meas.) 4; Bond and deSchauensee, Proc. Acad. Nat. Sci. Philadelphia, xcv, 1943, 179 (Santa Ana, Bolivia; spec.).

[83] (?) **Sparvius semitorquatus** Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 322 (Paraguay).—*Micrastur semitorquatus* Sclater and Salvin, Proc. Zool. Soc. London, 1859, 218, part (monogr.); Nom. Av. Neotr., 1873, 120, part; Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 51 (Brazil), 76, part (monogr.); Berlepsch, Journ. für Orn., 1873, 288 (Santa Catarina, s. Brazil; crit.; synonymy; range); Sharpe, Cat. Birds Brit. Mus., i, 1874, 75, part (Bahia, Brazil); Ihering, Rev. Mus. Paulista, iii, 1899, 345 (São Paulo, s. Brazil); Lönnberg, Ibis, 1903, 465 (Tatarenda, Bolivia); Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 570 (crit. on type of *Astur brachypterus* Spix); Dabbene, Orn. Argent., 1910, 241 (Chaco, Buenos Aires, Argentina).—*Climacocercus semitorquatus* Cabanis, Journ. für Orn., 1865, 407; *Climacocercus semitorquatus* Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 256, part (Rio Grande do Sul, s. Brazil).—*Sparvius melanoleucus* Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 327 (Paraguay: not of p. 319!); Encycl. Méth., iii, 1823, 1267.—*Circaëtus* (*Herpetotheres*) *melanoleucus* Kaup, Mus. Senekenb., iii, Heft 3, 1845, 260.—*Micrastur melanoleucus* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 482, part (monogr.); Berlepsch and Ihering, Zeitschr. Orn., 1885, 171 (Taquaia, Rio Grande do Sul, s.

dd. Wing length under 250 mm.

M. semitorquatus buckleyi, juv. (extralimital)[84]

cc. Back and upper side of folded wing not conspicuously barred with fulvous-tawny.

d. Underparts, including breast, heavily barred with brownish black.

e. Wing under 250 mm. **M. semitorquatus buckleyi**, imm. (extralimital)

ee. Wing over 250 mm.

f. Dorsal coloration lighter, fuscous to dark fuscous.

M. semitorquatus semitorquatus, imm. (extralimital)

Brazil); Berlepsch, Journ. für Orn., 1887, 122 (Paraguay); Gurney, List Diurn. Birds Prey, 1884, 24, part; Cat. Birds Prey, 1894, 19, part; Koeningswald, Journ. für Orn., 1896, 385 (São Paulo, s. Brazil); Sharpe, Hand-list, i, 1899, 246, part; Ihering, Rev. Mus. Paulista, vi, 1904, 337 (Paraguay).—*Micrastur melanleucus* Ridgway, Ibis, 1876, 3, part (diagnosis); Gurney, Ibis, 1879, 171, footnote.—*Micrastur melanoleucus melanoleucus* Swann, Synopt. List Accip., pt. 1, 1919, 15, in part; Synop. Accip., pt. 1, 1921, 24, part; Monogr. Birds Prey, i, 1925, 140 (monogr.).—(?) *Falco frenatus* Lichtenstein, Verz. Doubl., 1823, 62 (Brazil; cites *Buse brune des champs* Azara and *Epervier noir* et *blanc* Azara, *F. leucomelas* Illiger).—*Falco brachypterus* Temminck, Planches Col., i, 1824, pls. 116, 141 (Brazil, etc.).—*Astur brachypterus* Spix, Av. Braz., i, 1824, 9 (Bahia, Brazil); Vigors, Zool. Journ., i, 1824, 338; Stevens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 28.—*Nisus brachypterus* Lesson, Man. d'Orn., i, 1828, 98; Traite d'Orn., 1831, 62; Cuvier, Règne Anim., i, ed. 2, 1829, 334; Schlegel, Mus. Pays-Bas, ii, No. 4. livr. 1, 1862, 52, part (monogr.); No. 36, livr. 10, 1873, 99, part.—*Micrastur brachypterus* Gray, Gen. Birds, ed. 2, 1841, 6; fol. ed., i, 1849, 28, pl. 10, fig. 1; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 69, part (Bahia, Brazil); Hand-list, i, 1869, 31, No. 290, part (Bahia, Brazil); Bonaparte, Consp. Gen. Av., i, 1850, 30; Pelzeln. Reis. Novara. Vög., 1865. 12; Orn. Bras., Abth. 1, 1868, 7; Abth. 4, 1870, 398; Hellmayr, Nov. Zool., xiv, 1907, 405 (Borba, Rio Madeira w. Brazil; crit. on *Sparvius semitorquatus* Vieillot and *S. melanoleucus* Vieillot) xvii, 1910, 409 (Borba); Dabbene, Orn. Argent., 1910, 415 (Lediama, Jujuy) Boll. Soc. Physis, Buenos Aires, i, 1913, 298 (Chaco, Argentina); Bertoni, Fauna Paraguaya, 1913, 42 (Puerto Bertoni, Yguasí); Swann, Synopt. List Accip., pt, 1, 1919, 15, part.—*Micrastur brachypterus brachypterus* Todd and Carriker, Ann; Carnegie Mus., xiv, 1922, 159 (Bonda, Negiange, Cincinati, Mematoco, Dibilla; and Fundacion, Santa Marta, Colombia; crit.).—*Circaëtus* (*Herpetotheres*) *brachypterus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260.—*Circaëtus brachypterus* Kaup, Isis, 1847, 258 (monogr.), 368, 376, 380; *in* Jardine's Contr. Orn., 1850, 71.—*Rhynchomegus brachypterus* Bonaparte, Rev. Mag. Zool., vi, 1854, 537.—*Climacocercus brachypterus* Burmeister, Syst. Übers. Th. Bras., ii, 1856, 88.—*Carnifex naso* Lesson, Écho du Monde Savant, ann. 9, 1842, 1081; Rev. Zool., 1842, 379.—*Circaëtus* (*Herpetotheres*) *leucomelas* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 260 (South America).—*Micrastur semitorquatus semitorquatus* Peters, Check-list Birds of World, i, 1931, 277.

[84] **Micrastur melanoleucus buckleyi** Swann, Synopt. List Accip., pt. 2, 1919, Addenda et Corrigenda (pt. 1), 15 (Sarayacu, e. Ecuador; coll. Brit. Mus.); Synop. Accip., pt. 1, 1921, 25; Monogr. Birds of Prey, ii, 1933, 142; Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 221 (Río Suno, San José, and below Baeza, Ecuador).—*Micrastur melanoleucus* Lönnberg and Rendahl, Ark. Zool., xiv, 1922, 33 (Gualea and Nanegal, Ecuador).—*Micrastur semitorquatus buckleyi* Peters, Check-list Birds of World, i, 1931, 277.

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ff. Dorsal coloration darker, fuscous-black to black (Mexico to n. South America)..... **M. semitorquatus naso**, juv. (p. 568)

dd. Breast solid white or solid black or brownish black, the rest of the underparts barred with brownish black.

e. Underparts solid black or dark brownish black.

f. Underparts dark brownish black (Mexico to n. South America). **M. semitorquatus naso**, melanistic phase (p. 568)

ff. Underparts deep black. **M. semitorquatus buckleyi**, melanistic phase (extralimital)

ee. Underparts immaculate white or buff.

f. Light bands of the tail feathers with brown patches in their centers; size small, wing under 230 mm. **M. semitorquatus buckleyi**, ad. (extralimital).

ff. Light bands of the tail feathers with no brown patches in them; size larger, wings over 230 mm.

g. Size larger, wings of male usually over 265 mm. in length; of females usually over 275 mm. (Mexico to n. South America). **M. semitorquatus naso**, ad. (p. 567)

gg. Size smaller, wings of males usually under 265 mm. in length; of females usually under 275 mm. **M. semitorquatus semitorquatus**, ad. (extralimital)

aa. Size smaller, wing under 200 mm. in length.

b. Tail with only 1 white band..... **M. plumbeus** (extralimital)[85]

bb. Tail with 2 or more white bands.

c. Throat and breast tawny-cinnamon to tawny-chestnut. **M. ruficollis ruficollis** (extralimital) [86]

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[85] (?) **Micrastur guerilla** (not of Cassin) Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, nw. Ecuador); 1884, 310 (Suruputa, w. Ecuador; crit.).—*Micrastur plumbeus* Sclater, Bull. Brit. Orn. Club, xxxviii, No. 231, 1918, 44 (Carondelet, Río Bogotá, Esmeraldas, nw. Ecuador; coll. Brit. Mus.); Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 222; Peters, Check-list Birds of World, i, 1931, 278.—*Climacocercus plumbeus* Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., pt. 1, 1921, 26 (nw. Ecuador).—*Clamosocircus, plumbeus* Swann, Monogr. Birds Prey, i, 1925, 150 (monogr.).

[86] **Sparvius ruficollis** Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 322, 323 (South America); Encycl. Meth., iii, 1823, 1263, 1264; Pucheran, Rev. Mag. Zool., ii, 1850, 91 (crit. on type spec.).—*Micrastur ruficollis* Strickland, Orn. Syn., i, 1855, 122; Sclater and Salvin, Proc. Zool. Soc. London, 1869, 366 (monogr.); Nom. Av. Neotr., 1873, 120; Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 78, part (monogr.; Brazil); Proc. Acad. Nat. Sci. Philadelphia, 1875, 490, part (monogr.; excl. "plumbeus phase"=*M. gilvicollis*); Ibis, 1876, 3 (diagnosis); Sharpe, Cat. Birds Brit. Mus., i, 1874, 76, 456 (Bahia, Brazil); Gurney, List Diurn. Birds Prey, 1884, 25, 119 (crit.); Cat. Birds Prey, 1894, 19; Salvadori, Boll. Mus. Zool. Torino, xii, 1897, 29 (San Lorenzo, n. Argentina; deser. young; crit.); Ihering, Rev. Mus. Paulista, iii, 1899, 346 (Piquete, São Paulo, s. Brazil); vi, 1904, 337 (Paraguay); Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 573 (crit. on *Falco xanthothorax* Spix); Nov. Zool., xxviii, 1921, 179 (crit.; range); Dabbene, Bol. Soc. Physis Buenos Aires, i, 1914, 299 (San Lorenzo, Jujuy, Argentina; Sapucay, Paraguay).—*Micrastur ruficollis ruficollis* Swann, Synopt. List Accip., pt. 1, 1919, 15 (e. South America); Peters, Check-list Birds of World, i, 1931, 277.—*Climacocercus ruficollis* Cabanis, Journ. für Orn., 1865, 407; Swann,

cc. Throat and breast not tawny cinnamon to tawny chestnut, but whitish, grayish, or pale grayish brown.

d. Chin and upper throat pale grayish; the rest of the underparts whitish or pale buffy white, with fine wavy blackish lines across the breast and upper abdomen ..... **M. gilvicollis** (extralimital)[87]

dd. Chin and throat whitish or grayish brown, or, if grayish, the underparts heavily banded with black.

e. Under surface of body white banded with black.

f. Throat dull grayish brown; an irregular white nuchal collar present ..... **M. ruficollis zonothorax** (extralimital)[88]

Synopt. List Accipt., pt. 1, 1919, 16; Synop. Accip., pt. 1, 1921, 25 (c. and e. Brazil; Paraguay; n. Argentina).—*Clamosocircus ruficollis* Swann, Monogr. Birds Prey, i, 1925, 145 (monogr.).—*Falco xanthothorax* Spix, Av. Bras., i, 1824, 19 (prov. Rio de Janeiro, Brazil); Temminck, Planches Col., i, 1824, pl. 92 and text.—*Astur xanthothorax* Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 27, part (Brazil).—*Nisus xanthothorax* Lesson, Man. Orn., i, 1828, 96; Traité d'Orn., 1831, 58; Cuvier, Règne Anim., ed. 2, i, 1829, 334; Schlegel, Mus. Pays-Bas, ii, No. 4, livr. 1, 1862, 50 (monogr.).—*Circaëtus xanthothorax* Kaup, Isis, 1847, 259 (monogr.), 368 *in* Jardine's Contr. Orn., 1850, 71.—*Micrastur xanthothorax* Gray, Gen. Birds, ed. 1, 1844, suppressed, and ed. 2, 1844, 28; Pelzeln, Reis. *Novara*, Vög., 1865, 12; List Spec. Brit. Mus., pt. 1, Accip, ed. 2, 1848, 69; Pelzeln, Orn, Bras., Abth. 4, 1871, 399; Bonaparte, Consp. Gen. Av., i, 1850, 30; Rev. Mag. Zool., vi, 1854, 537.—*Falco leucauchen* Temminck, Planches Col., i, 1824, pl. 306, and text (Brazil; juvenal); Pucheran, Rev. Zool., 1852, 91 (crit.); Hellmayr, Nov. Zool., xxviii, 1921, 180 (crit. on type specimen).—*Astur leucauchen* Lesson, Man. d'Orn., i, 1828, 9; Cuvier, Règne Anim., ed. 2, 1829, 332.—*Nisus leucauchen* Lesson, Traité d'Orn., 1831, 60.—*Thrasyaccipiter seminocturnus* Bertoni and Bertoni, An. Cien. Paraguayos i, No. 1, 1901, 164 (forests of the Alto Paraná).—(?) *Accipiter virgatus* (not *Falco virgatus* Temminck, 1822) Bertoni and Bertoni, An. Cien. Paraguayos, i, No. 1, 1901, 163 (Djaguarasapa, Paraguay).

[87] **Sparvius gilvicollis** Vieillot, Nouv. Dict. Hist. Nat., x, 1817, 323; Pucheran, Rev. Mag. Zool., 1850, 91.—*Astur xanthothorax* Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 27, part (Guiana, etc.).—*Nisus concentricus* Lesson, Traité' 1831, 60 (*ex* Illiger, MS.; Cayenne); d'Orbigny, Voy Amer. Mérid., Ois, 1837, 88; Schlegel, Mus. Pays-Bas, Astures, 1862, 51.—*Climacocercus concentricus* Cabanis, *in* Tschudi, Fauna Peruana, Vög., 1844, 98; *in* Schomburgk's Reis. Brit. Guian., iii, 1848, 738; Burmeister, Th. Bras., ii, 1855, 86.—*Micrastur concentricus* Gray, Gen. Birds, 1849, 28; Pelzeln, Orn. Bras., 1871, 7, 399.—*Micrastur gilvicollis* Pelzeln, Reis. Novara, Vög., 1865, 10; Orn. Bras., 1871, 7, 399; Sharpe, Cat. Birds Brit. Mus., i, 1874, 78; Gurney, Ibis, 1875, 232; List Diurnal Birds Prey, 1884, 25, 121; Swann, Synopt. List Accip., 1919, 16.—*Micrastur pelzelni* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 494 (Sarayacu); Ibis, 1876, 4; Taczanowski, Orn. Pérou, i, 1884, 161.—*Micrastur ruficollis gilvicollis* Sclater, Ibis, 1918, 346; Peters, Check-list Birds of World, i, 1931, 278.—*Climacocercus gilvicollis* Cabanis, Journ. für Orn., 1865, 407; Swann, Synopt. List Accip., 1919, subst. p. 16; Synop. Accip., pt. 1, 1921, 26.—*Clamosocircus gilvicollis* Swann, Monogr. Birds Prey, i, 1925, 149 (monogr.).

[88] **Climacocercus zonothorax** Cabanis, Journ. für Orn., 1865 (publ. Jan. 1866), 406 (Puerto Cabello, Venezuela); Swann, Synopt. List Accip., pt. 2, 1919, Addenda et Corrigenda (part 1), p. 16; Synop. Accip., pt. 1, 1921, 26; Auk, xxxviii, 1921,

ff. Throat with no brownish; no white nuchal collar.

g. Upperparts dark slate-gray; wings and tail brownish.

h. The dark bars progressively decreasing in width from the upper abdomen toward the under tail coverts (s. Mexico to Nicaragua)_____**M. ruficollis guerilla**, ad. ♂ (p. 574)

hh. The dark bars not narrower and not more widely spaced on the under tail coverts and lower abdomen than on the upper abdomen (Costa Rica to w. Ecuador).

M. ruficollis interstes, ad. ♂ (p. 577)

gg. Upperparts brownish like the wings and tail.

h. Tail with 3 white bands (not counting tips which are white).

i. Dark bars on thighs and under tail coverts narrower and more widely spaced than those on the upper abdomen (s. Mexico to Nicaragua).

M. ruficollis guerilla, ad. ♀ (p. 574)

ii. Dark bars on thighs and under tail coverts not narrower and not more widely spaced than those on upper abdomen (Costa Rica to w. Ecuador).

M. ruficollis interstes, ad. ♀ (p. 577)

hh. Tail with at least 4 white bands exclusive of the white tips. Underparts heavily barred, at least on breast and upper abdomen:

(Costa Rica to w. Ecuador).

M. ruficollis interstes, juv. (p. 577)

(S. Mexico to Nicaragua)

M. ruficollis guerilla, juv. (p. 575)

ee. Underparts immaculate or only sparsely barred:

(Costa Rica to w. Ecuador).

M. ruficollis interstes, juv., plain phase (p. 575)

(S. Mexico to Nicaragua).

M. ruficollis guerilla, juv., plain phase (p. 577)

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357 (Montaña Sierra, Valle, and Chacna, 200–300 m., and Limoues, 700 m., Venezuela).—*Micrastur zonothorax* Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252, 254 (coast range of Puerto Cabello, Venezuela; crit.), 366 (monogr.); 1873, 511 (Venezuela); Nom. Av. Neotr., 1873, 120; Sharpe, Cat. Birds Brit. Mus., i, 1874, 79 (Colombia; Venezuela); Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 489 (monogr.); Ibis, 1876, 3 (diagnosis); Gurney, List Diurn. Birds Prey, 1884, 25, 120, in text (crit.); Cat. Birds Prey, 1894, 19; Bradbourne and Chubb, Birds South Amer., i, 1912, 64 (Venezuela; Colombia).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 158 (Cincinnati, Sierra Nevada at 8,000 feet, Las Vegas, San Lorenzo, Pueblo Viejo, and Chirua, Santa Marta, Colombia; crit.).—*Micrastur ruficollis zonothorax* Swann, Synopt. List Accip, pt. 1, 1919, 16; Peters, Check-list Birds of World, i, 1931, 278.—*Micrastur guerilla zonothorax* Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 241, in text; Hellmayr, Nov. Zool., xxviii, 1921, 179 (crit.; range).—*Micrastur ruficollis* (not *Sparvius ruficollis* Vieillot) Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 78, part (in synonymy).—*Climacocercus zonothorax* Swann, Synopt. List Accip., 1919, subst. p. 16; Synop. Accip., 1, 1921, 26.—*Clamosocircus zonothorax* Swann, Monogr. Birds Prey, i, 1925, 147 (monogr.).

MICRASTUR SEMITORQUATUS NASO (Lesson)

CENTRAL AMERICAN PIED FOREST FALCON

Adult, light phase (sexes alike).—Forehead, crown, occiput, nape, scapulars, interscapulars, upper wing coverts, remiges, back, rump, and upper tail coverts black, the wings and their coverts, rump, and upper tail coverts inclining to fuscous-black, the top of head and interscapulars the deepest black; a fairly broad white collar interrupting the black on the hind neck, continuing lateroventrally to

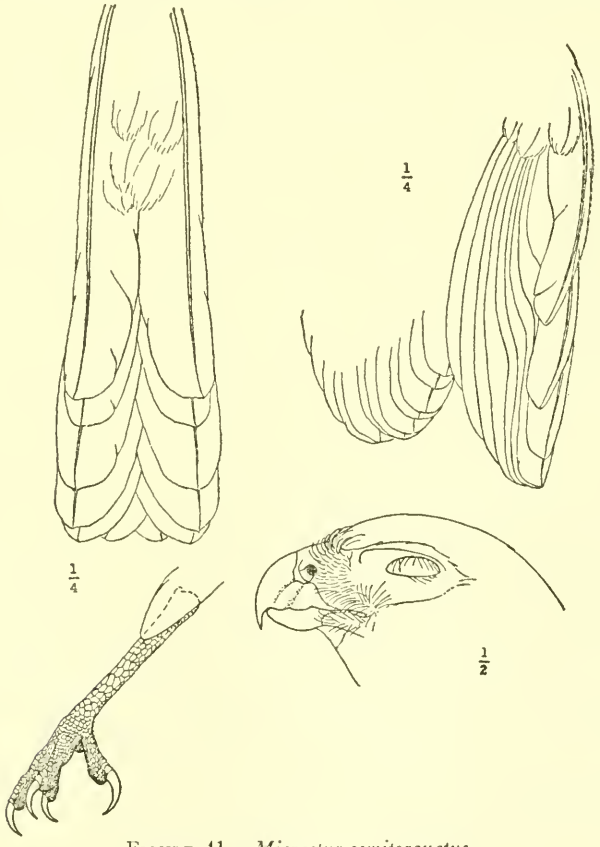

FIGURE 41.—*Micrastur semitorquatus.*

join the white underparts; the upper tail coverts with a white band which is sometimes broken into spots, and tipped with white; remiges whitish on the inner portions of their inner webs, except for a broad terminal fuscous-black area; the white part broadly barred with fuscous-black which breaks up the white into isolated incomplete bands not reaching the shaft except at the extreme basal part of the feather; sixth primary (from outside) the longest, then the fifth, seventh, fourth, third, eighth, ninth, the outermost one by far the

shortest; tail fuscous-black tipped with white and crossed by four rather narrow white bands equally spaced along its length, the two halves of each band sometimes slightly unevenly located with respect to their meeting with the shaft; chin, throat, cheeks, auriculars, breast, abdomen, sides, flanks, under tail coverts, and under wing coverts white, the cheeks and auriculars tipped with blackish or grayish; a black, crescentic gorget separating the auriculars from the ventral continuation of the white collar; some of the feathers of the breast and sides and flanks with fine black shafts; iris dark brown to orange brown; cere, lores, and orbits olive-green to yellowish olive-green; bill bluish black to black; tarsi and toes yellow; claws blackish.

Adult, tawny phase (sexes alike).—Similar to the light phase but with the wings more blackish, less fuscous-black, and with the nuchal collar and the entire underparts pinkish buff to light cinnamon-buff (the tail bands are white, not buffy).

Adult, dark phase.—Similar to light phase, but without any light nuchal collar, with the entire face, chin, throat, and breast fuscous, the abdomen, sides, flanks, thighs, and under tail coverts whitish heavily barred with blackish.[89]

Juvenal, light phase (sexes alike).—Forehead, crown, occiput, nape, cheeks, auriculars, scapulars, interscapulars, back, rump, upper wing coverts, remiges, and upper tail coverts sepia to dark sepia, a white or pale buffy nuchal collar as in adult, separating the brown of the nape from that of the interscapulars; the upper tail coverts somewhat darker than the back and banded with white; the scapulars, median and greater upper wing coverts barred, the lesser ones margined, with tawny-olive to Saccardo's umber; the remiges internally white banded with fuscous as in adults; tail as in adults, but with five irregular white bands and tipped with the same; entire underparts whitish to very pale cinnamon-buff, the chin and middle of upper throat white, the feathers of the lower throat, breast, anterior and lateral portions of abdomen, sides, flanks, and thighs each with at least two heavy transverse fuscous to fuscous-black bars, and with fine brownish shaft lines in some cases; lower median part of abdomen and under tail coverts either immaculate or less heavily marked than abdomen; under wing coverts as in adult, the greater ones subterminally spotted with fuscous-black; iris orange-brown; bill greenish olive like the cere, darker on the culmen; tarsi and toes yellowish green.

[89] It is not impossible that the abdomen, sides, flanks, etc., might become wholly fuscous in older birds. The specimen figured by Salvin and Godman (Biol. Centr.-Amer., Aves, iv, 1901, pl. 65), on which this description is based, was said to be not fully adult. See also Chapman (Bull. Amer. Mus. Nat. Hist., lv, 1926, 221), who records two melanistic birds with barred abdomen, of the Ecuadorean race *M. s. buckleyi.*

Juvenal, tawny phase (sexes alike).—Similar to the juvenal of the light phase, but the scapulars and remiges and median and greater upper wing coverts barred with pinkish buff, the lesser ones margined with the same; underparts as in light phase, but seldom pure whitish (although young of the light phase are often more buffy than the whitest of the young tawny phase birds).

Juvenal, dark phase.—None seen, but described by Gurney (Ibis, 1879, 173) as follows: "The entire upper surface is of a uniform and unbroken dark brown, with the following exceptions, viz.: a slightly darker shade of brown on the nape; a few indistinct fulvous-brown spots on both webs of the greater wing coverts, bastard wing and tertials, those on the inner webs of the feathers being paler than those on the outer web; similar but larger spots, assuming the character of transverse bars, on both webs of the primaries and secondaries; and white spots on both webs of the feathers of the upper tail coverts, taking the form in those next the tail of three transverse white bars, divided by the dark shaft of the feathers, the spots on the feathers next the rump being smaller and tinged with fulvous.

"The tail is of a somewhat darker brown than the back, with four white transverse bands, divided by the dark shafts of the feathers, and also narrowly tipped with white, the lateral rectrices with a concealed white bar near the base.

"The chin, throat, and upper breast are of a whole-coloured dark brown, of a similar hue to the nape; the lower breast, abdomen, flanks, and thighs of the same brown tint, but with each feather exhibiting two or three pairs of lateral spots and a narrow tip, all of which are white, with more or less of an ochraceous tinge; the under tail coverts are similar, but with the white spots larger and broadened into transverse bars; the under wing coverts are a whole-coloured dark brown, like the breast, except the lowest feathers, which exhibit white spots in pairs; the undersides of the quill feathers of the wing are of a similar, but duller brown, transversely and more or less regularly barred with black.

"The bill is slaty black, slightly mottled with dirty white about the edges of both mandibles.

"The tarsi and feet are olive-brown, with a tinge of yellow towards the extremities of the toes."

Natal down.—Not described.

Adult male.—Wing 256-275 (263. 7); tail 260–300 (269. 9); culmen from cere 20–23. 5 (22. 1); tarsus 82–87 (84. 2); middle toe without claw 43–47 (45. 4 mm.).[90]

Adult female.—Wing 265–285 (273. 1); tail 270–300 (280. 9); culmen

[90] Eleven specimens from Mexico, Honduras, British Honduras, Costa Rica, and Colombia.

from cere 22–24 (23. 1); tarsus 78–87 (82. 0); middle toe without claw 43–50. 5 (47. 1 mm.).[91]

Range.—Resident in tropical forests from central Mexico (Tamaulipas—Altamira; Caballeros; Sinaloa—Mazatlán; Escuinapa; Veracruz—Jalapa; Mirador; Colima—Colima; Sierra Madre; Oaxaca—Santa Efigenia; Tehuantepec; Guerrero—Acapulco; Chiapas—Tonala; Campeche—La Tuxpena; Yucatán—Chichen Itzá; Puerto Morelos); south through Guatemala (Retalheuleu, Medio Monte, Savana Grande, Hacienda California, Finca El Cipres); Honduras (La Ceiba, San Pedro Sula, Atlantic slope); El Salvador (Lata Olomega, Puerto del Triunfo, Sonsonate, San Sebastián, Lake Chanmico, Volcán de Conchagua, La Liberatad); Nicaragua (Realejo, San Juan del Sur); Costa Rica (Carillo, Las Cruces de Candelaria, Rancho Redondo, Angostura, Sipurio, Talamanca, San José, Boruca, Sibuhue, Irazú, Bebedero, Bleon); and Panama (Permé, Obaldia, Changuinola, Laguna de Pita, Loma del Léon, Mina de Chorche, Panama Railway Line); to northern Colombia (Santa Marta area—Bonda, Neguange, Cincinnati, Mamatoco; Dibulla; Fundación, Río Frío, Magdalena; Valencia); and Venezuela (Caicara, Cerro Yapacana, Maracaibo, San Julián); probably to British Guiana (Roraima); Dutch Guiana; and French Guiana.

Type locality.—Realejo, Nicaragua.

Carnifex naso Lesson, Écho du Monde Savant, vi, sec. 2, 1842, col. 1085 (Realejo, Nicaragua).

Micrastur melanoleucus naso? Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 221 (Mindo, Ecuador).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 150 (Hacienda California, Finca El Cipres, Guatemala; rather uncommon in forested areas in Central America); Bull. Mus. Comp. Zool., lxxii, 1932, 316 (Permé, Obaldia, Panama).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 212 (ne. Nicaragua; spec.; colors; meas.).

Micrastur semitorquatus naso Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 308 (Changuinola and Cricamola, Panama); Check-list Birds of World, i, 1931, 277 (distr.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 301 (Honduras; reported but not definitely).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Panama; scattered records from humid tropical forests).—Deignan, Auk, liii, 1936, 188, in text (Honduras; spec.; descr.).—Compton, Univ. California Publ. Zool., xlii, 1938, 189 (pterylosis).—Dickey and van Rossem, Birds El Salvador, 1938, 132 (El Salvador; distr.; habits; colors of soft parts).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 27 (ne. Mexico; Tamaulipas; several records; spec.); Condor, xlii, 1940, 259, in text (Mexico; San Luis Potosí; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser. xxiv, 1941, 204 (Pacaitun, Campeche; spec.).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 526 (Michoacán; Apatzingán; spec.).—Sutton and Pettingill, Auk, lix, 1942, 10 (Gómez Farias region, sw. Tamaulipas; habits).

[91] Seven specimens from Mexico, Honduras, Panama, and Colombia.

Micrastur semitorquatus naso? Dugand, Rev. Acad. Colomb., iii, 1940, 220 (spec.; between Bolivar and Atlantico, Colombia).

Micrastur semitroquatus naso Compton, Univ. California Publ. Zool., xlii, 1938, 176 (pterylosis).

Falco percontator Cabot, Journ. Boston Soc. Nat. Hist., iv, 1844, 462 (Chichen Itzá, Yucatán; 2 specs.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 186 (type in Mus. Comp. Zool. = *Micrastur melanoleucus naso*).

Micrastur melanoleucus percontator Swann, Synop. Accip., pt. 3, 1922, Errata et Addenda, p. ii (Mexico and Yucatán; Central America; n. South America); Monogr. Birds Prey, i, 1925, 142 (monogr.).

Micrastur brachypterus (not *Falco brachypterus* Temminck) Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 69, part (Mexico).; Hand-list, i, 1869, 31, No. 290, part (Mexico).—Taylor, Ibis, 1860, 225 (Atlantic slope, Honduras).—Berlepsch, Nov. Zool., xv, 1908, 290 (Cayenne).—Carriker, Ann. Carnegie Mus., vi, 1910, 452 (Bolson and Carrillo Costa Rica; habits). —Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 344 (Caicara, Venezuela; fresh colors of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 221 (habits).—Swann, Synopt. List Accip., pt. 1, 1919, 15, part (Mexico, Central America; Colombia).

Nisus brachypterus Schlegel, Mus. Pays-Bas, Astures, 1862, 52, part (Mexico).

Micrastur brachypterus brachypterus Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 159 (Bonda, Neguange, Cincinnati, Mamatoco, Dibulla, and Fundación, Santa Marta region, Colombia; plumages).

Micrastur semitorquatus (not *Sparvius semitorquatus* Vieillot) Sclater and Salvin, Ibis, 1859, 218 (Guatemala; Yucatán); Proc. Zool. Soc. London, 1869, 365, part (monogr.); 1870, 216 (Mina de Chorcha, Veraguas, Panama); (?) 1873, 303 (Santa Cruz, e. Peru); Nom. Av. Neotr., 1873, 120, part (Central America).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 462 (Panama); ix, 1868, 134 (Las Cruces de Candelaria and Rancho Redondo, Costa Rica); Mem. Boston Soc. Nat. Hist., ii, 1874, 299 (Mazatlán, Sinaloa; habits; descr. nest); U. S. Nat. Mus. Bull. 4, 1875, 40 (Santa Efigenia and Tehuantepec City, Oaxaca; habits; descr. fresh colors of unfeathered parts).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Salvin, Proc. Zool. Soc. London, 1870, 216 (Veraguas, w. Panama); ? Ibis, 1886, 75 (Roraima, Brit. Guiana, 3,500 ft.).—Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 76, part (monogr.; Mexico; Guatemala; Costa Rica; Panama).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 75, part (Colombia; Mexico).—Boucard, Proc. Zool. Soc. London, 1878, 44 (Cerro de la Candelaria, Costa Rica).—Salvin and Godman, Ibis, 1880, 177 (Valencia, Sierra Nevada de Santa Marta, Colombia).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 173 (common names; Mexico).—Beristain and Laurencio, Mem. y. Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; distr.).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 113 (Caicara, Venezuela; fresh colors of unfeathered parts).—Sutton and Burleigh, Wils. Bull., lii, 1940, 223, in text (Mexico; Tamazunchale; 1 rec.).

(?) *Micrastur semitorquatus* ? Bangs, Proc. Biol. Soc. Washington, xii, 1898, 132 (Santa Marta, Colombia; crit.).

Micrastur semitorquatus percontator Bangs and Peters, Bull. Mus. Comp. Zool., lxviii, 1928, 387 (Tapanatepec, Oaxaca, Mexico).—Kennard and Peters, Proc. Boston Soc. Nat. Hist., xxxviii, 1928, 449 (Almirante, Panama; spec.; colors of soft parts; meas.).

Climacocercus semitorquatus Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 256, part (Jalapa, Veracruz).

Micrastur melanoleucus (not *Sparvius melanoleucus* Vieillot) Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 482, part (monogr.; Mirador, Veracruz; Tehuantepec City, Oaxaca; Mazatlán, Sinaloa; Colima and Sierra Madre, Colima; Angostura, Rancho Redondo, Sipurio, Talamanca, and San José, Costa Rica; Panama Railway); Ibis, 1876, 3, part (diagnosis).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Gurney, List Diurn. Birds Prey, 1884, 24, part; Cat. Birds Prey, 1894, 19, part.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Costa Rica).—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 50 (Boruca, sw. Costa Rica).—Richmond, Proc. U. S. Nat. Mus., xviii, 1896, 628 (Altamira, Tamaulipas).—Sharpe, Hand-list, i, 1899, 246, part.—Bangs, Proc. New England Zool. Club, ii, 1900, 15 (Loma del León, Panama).—Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 168 (San Julián, Venezuela).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 107 (Mazatlán and Presidio de Mazatlán, Sinaloa; plains of Colima and Sierra Madre, Colima; Tehuantepec City and Santa Efigenia, Oaxaca; Mirador, Veracruz; Altamira, Tamaulipas; Tonalá, Chiapas; Yucatán; Retalhuleu, Medio Monte, and Savana Grande, Guatemala; La Libertad, El Salvador; San Joan del Sur, Nicaragua; San José, Angostura, Las Cruces de Candelaria, Rancho Redondo, Cerro de la Candelaria, Talamanca, Sipurio, Sibuhue, Irazú, and Bebedero, Costa Rica; Mina de Chorcha, Lion Hill, and Laguna de Pita, Panama).—Miller, Bull. Amer. Mus. Nat. Hist., xxi, 1905, 345 (Escuinapa, etc., Sinaloa; crit.).—Cole, Bull. Mus. Comp. Zool., l, 1906, 121 (Chichen Itzá, Yucatán).—Dearborn, Publ. Field Mus. Nat. Hist. No. 125, 1907, 83 (San José, Guatemala).—Penard and Penard, Vög. Guyana, i, 1908, 380 (Dutch Guiana).—Phillips, Auk, xxviii, 1911, 73 (Caballeros, s. Tamaulipas).—Reichenow, Die Vögel, i, 1913, 373.—Bangs, Auk, xxxii, 1915, 168 (type specimen of *Falco percontator* in Mus. Comp. Zool.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 248 (Panama Canal Zone).—Sturgis, Field Book Birds Panama Canal Zone, 1928 (1929) (descr.; habits; Panama).

Micrastur melanoleucus melanoleucus Swann, Synopt. List Accip., pt. 1, 1919, 15, part; Synop. Accip., pt. 1, 1921, 24, part (s. Mexico to Colombia and Venezuela).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 368 (near Río Frío, Magdalena, Colombia).

Micrastur amaurus Gurney, Ibis, ser. 4, iii, 1879, 173, in text ("forest region of Panama"; coll. Salvin and Godman); List Diurn. Birds Prey, 1884, 24; Cat. Birds Prey, 1894, 19.—Reichenow and Schalow, Journ. für Orn., 1881, 77 (reprint of original descr.).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 109, pl. 65 (Panama).

MICRASTUR MIRANDOLLEI EXTIMUS Griscom and Greenway

Northern Mirandolle's Forest Falcon

Adult (sexes alike).—Forehead, crown, occiput, nape, scapulars, interscapulars, back, rump, upper tail coverts, upper wing coverts, and remiges deep neutral gray with a slaty tinge, the top of head somewhat darker; the inner webs of the remiges white for their basal two-thirds or more, and crossed by three or four fairly broad dark mouse gray bands and somewhat mottled with deep mouse gray on the more distal portion of the whitish area; the fifth (from the outside) primary the longest, the first (outermost) the shortest; tail

chaetura-black tipped with white or buffy white and crossed by three narrow equally spaced, whitish or buffy white bands, each enclosing a mottled transverse area of deep mouse gray; lores and orbital area bare; a slight line below the eye, cheeks and auriculars like the crown; the posterior auriculars shading to buffy white; chin, throat, breast, abdomen, sides, flanks, thighs, and under tail coverts whitish to pale light pinkish buff, the feathers, especially of the breast and sides, with very fine dusky shaft lines; under wing coverts whitish to pinkish buff, the lower ones mixed or banded with deep neutral gray; iris yellowish brown; cere and base of both mandibles yellowish, the bill otherwise horn-black; tarsi and toes bright yellow; claws black.

Immature (sexes alike).—Similar to adult, but with a brownish slate tinge on the upperparts, pale tail bands washed with pale fulvous, the entire underparts pinkish buff to warm buff, the feathers of the breast and sides with dusky shaft streaks; bill blackish except basally, where it is yellow.

Juvenal (sexes alike).—Similar to adult, but entire upperparts dull fuscous with a faint slate wash; underparts white washed with pale buff on the throat, breast, sides, flanks, and upper part of the abdomen, not on chin or vent; each feather of the throat, breast, sides, flanks, and upper abdomen with a broad border of fulvous drab to dark hair brown, producing a conspicuously scalloped appearance; bill yellow, slightly dusky along the proximal portion of the culmen.

Natal down.—Unknown.

Adult male.—Wing 216–237 (221.3); tail 182–200 (191.5), culmen from cere 20–23.3 (21.0); tarsus 74.1–81 (77.6); middle toe without claw 32.5–38 mm. (35.1 mm.).[92]

Adult female.—Wing 220–228 (224.3); tail 187–195 (191); culmen from cere 20.2–22.4 (21.4); middle toe without claw 35.1–38 (36.4 mm.).[93]

Range.—Resident, and apparently everywhere rather scarce, in tropical forests from Costa Rica (Talamanca) to Panama (scattered records from the Caribbean slope, only 1 record from the Pacific slope—Panama Railway Line, Río Chepo, Permé, Obaldia), and south to western Colombia (Chocó; Río Jurado, Río Yarubida, Río Baudo).

Type locality.—Permé, Caribbean coast of extreme eastern Panama.

[*Micrastur*] *poliogaster*? (not *Falco poliogaster* Temminck, 1824) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 317 (Panama Railway; descr.; crit.).

Micrastur mirandollii Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 485, part (monogr.; Talamanca, Costa Rica).—Salvin, Ibis, 1886, 501, part (Panama); Ibis, 1876, 3 part (diagnosis).

[92] Seven specimens from Panama, Costa Rica, and Colombia.

[93] Seven specimens from Panama and Colombia. A female from Rio Juradó, Colombia is said by Dugand (Caldasia, No. 3, Dec. 1941, p. 58) to have a wing of 235, tail 200 mm.

Micrastur mirandolli Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 122 (Costa Rica).

Micrastur mirandollei Sharpe, Hand-list, i, 1899, 246, part (Panama).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 109, part (Talamanca, Costa Rica; Panama Railway).—Carriker, Ann. Carnegie Mus., vi, 1910, 452 (Talamanca, Costa Rica).—Stone, Proc. Acad. Nat. Sci., Philadelphia, 1918, 248 (Panama Canal Zone).—Swann, Synopt. List Accip., pt. 1, 1919, 15, part; Synop. Accip., pt. 1, 1921, 25, part; Monogr. Birds Prey, i, 1925, 144, part (monogr.).—Peters, Check-list Birds of World, i, 1931, 277, part.—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 317 (Permé, Obaldia, Panama; plum.); Auk, l, 1933, 303 (Río Chepo, Darién; spec.); Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Panama; scattered records from Caribbean slope; 1 from Pacific slope).—Dugand, Caldasia, No. 3, 1941, 58 (Río Juradó, Colombia; spec.; plum.; meas.).

Micrastur mirandollei extimus Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxi, 1937, 418 (Permé, Caribbean slope of extreme e. Panama).—Anonymous, Auk, liv, 1937, 562, in text (Permé, Panama).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxii, No. 3, 1945, 30, in text (e. Panama).

MICRASTUR RUFICOLLIS GUERILLA Cassin

Mexican Barred Forest Falcon

Adult male.—Forehead, crown, occiput, nape, scapulars, interscapulars, back, rump, upper tail coverts, lesser and median upper wing coverts deep neutral gray to dark slate color; greater upper wing coverts and remiges dark mummy brown, the remiges incompletely barred with grayish white to white on the basal two-thirds of the inner webs; rectrices black with a very faint bluish sheen, tipped narrowly with white and crossed by three equally spaced narrow white bars, the bars narrow on both webs of the median pair of rectrices, wider on the inner webs and narrower and grayer on the outer webs of the more lateral ones, and not extending to the outer webs of the outermost two feathers; lores and circumorbital area bare; cheeks and auriculars like the crown and nape but slightly paler; chin, upper throat and sides of upper neck pale mouse gray; lower throat, breast, abdomen, sides, flanks, thighs, under tail coverts, and under wing coverts white finely barred with blackish, the bars having a slight fuscous tinge, the bars less numerous, more widely spaced, showing more of the white on the lower abdomen, thighs, flanks, and under tail coverts, the middle of lower abdomen and under tail coverts sometimes almost unbarred; iris light orange-brown; orbital skin, lores, cere, tarsi, and toes orange-yellow; maxilla blackish, mandible dull yellowish orange; claws plumbeous.

Adult female.—Similar to the adult male, but with the scapulars, interscapulars, back, rump, upper tail coverts and all the upper wing coverts dark mummy brown to dark sepia, the forehead and crown the same but washed with deep neutral gray; cheeks, auriculars, chin, and upper throat grayish drab; iris yellow; orbital skin, lores, and cere

chrome yellow; maxilla horn blue; mandible light yellow; tarsi and toes greenish yellow; claws plumbeous.

Juvenal (sexes alike).—Very variable; forehead, crown, occiput, nape, scapulars, interscapulars, back, rump, upper tail coverts, upper wing coverts, and remiges fuscous to dull, dark sepia, a whitish to pale buff nuchal collar formed by a series of large spots across the nape, sometimes continuous and conspicuous, sometimes broken and nearly concealed; scapulars, and entire wings sometimes uniform dark brown, sometimes indistinctly barred or transversely spotted with paler, more cinnamomeous brown, these marks, when present, usually most pronounced on the inner remiges; upper tail coverts spotted with white; tail fuscous black to black, tipped with white and crossed by four or five equally spaced, narrow bars of the same, the bars not becoming appreciably grayer on the outer webs of the more lateral rectices, and extending to the outer webs of even the outermost pair; cheeks and auriculars dark sepia; chin and upper throat white, this color extending upward behind the auriculars in the form of a half crescent; remainder of underparts pale buff to warm buff, either immaculate, or barred on the breast, upper abdomen, sides, flanks, and thighs, and, occasionally the under tail coverts as well, with dark fuscous, these bars, when present somewhat broader and much more widely spaced than the ventral bars in the adults; as a rule when the underparts are immaculate, the upperparts are free from cinnamomeous bars or spots as well; iris greenish yellow; orbits, lores, and cere yellowish; maxilla bluish; mandible lighter bluish, basally yellowish; tarsi and toes light yellowish green.

Natal down.—Not known.

Adult male.—Wing 165–178 (169.1); tail 160–187 (176.1); culmen from cere 14–15 (14.5); tarsus 56–58 (57.1); middle toe without claw 28–31 (28.7 mm.).[94]

Adult female.—Wing 176–180; tail 180–186; culmen from cere 15–16; tarsus 53–58; middle toe without claw 30–30 mm.[95]

Range.—Resident in tropical forests from southern Mexico (Veracruz—Jalapa, Orizaba, Cuesta de Misantla, Uvero, and Córdoba; Campeche—La Tuxpeña); Guatemala (Vera Paz, Cobá, Los Amates, Choctum, and Laguna del Sotz, Petén); British Honduras (Cayo); Honduras (Ceiba, Contoral, Alto Contoral, Yaruca, and near Manatee Lagoon); to El Salvador (Mount Cacaguatique) and to Nicaragua (Río Escondido, Matagalpa, La Libertad, Santo Domingo, Río Coco, Lake Managua).

Type locality.—Jalapa, Veracruz, Mexico.

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[94] Six specimens from Mexico and Honduras.

[95] Two specimens from Honduras.

Micrastur guerilla CASSIN, Proc. Acad. Nat. Sci. Philadelphia, 1848, 87 (near Jalapa, Veracruz, s. Mexico; coll. Acad. Nat. Sci. Philadelphia; Journ. Acad. Nat. Sci. Philadelphia, ser. 2, i, pt. 4, 1850, 295, pl. 40 (Jalapa, Veracruz).—BONAPARTE, Consp. Gen. Av., i, 1850, 30; Rev. Mag. Zool., vi, 1854, 537.—GRAY, Hand-list, i, 1869, 31, No. 296.—SCLATER and SALVIN, Proc. Zool. Soc. London, 1869, 367, part (monogr.); 1870, 838 (coast Honduras); Nom. Av. Neotr., 1873, 120, part (Mexico; Central America, part).—SHARPE, Cat. Birds Brit. Mus., i, 1874, 79, part (Jalapa, Veracruz); Hand-list, i, 1899, 246, part.—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1875, 486, part (San Pedro, Honduras; Vera Paz, and Cobán, Guatemala; Jalapa, Veracruz; monogr.); Ibis, 1876, 3, part (diagnosis).—GURNEY, List Diurn. Birds Prey, 1884, 25, 117, 118, 119, part (crit.; variations in plumage of young); Cat. Birds Prey, 1894, 19, part.—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 520 (Río Escondido, e. Nicaragua).—BERISTAIN and LAURENCIO, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 226 (Mexico; distr.).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1901, 110, part (Jalapa, Cuesta de Misantla, Orizaba, Uvero, and Córdoba, Veracruz; Cayo, British Honduras; San Pedro, Honduras; Vera Paz, Guatemala; Matagalpa, La Libertad, Santo Domingo, Río Coco, Lake Managua, Río Escondido, Nicaragua).—BANGS, Bull. Mus. Comp. Zool., xxxix, 1903, 141 (Ceiba and Yaruca, Honduras).—DEARBORN, Publ. Field Mus. Nat. Hist., No. 125, 1907, 84 (Los Amates, Guatemala).

Micrastur guerilla guerilla SWANN, Synopt. List Accip., pt. 1, 1919, 16 (Mexico; Guatemala; Honduras).—BANGS and PETERS, Bull. Mus. Comp. Zool., lxvii, 1927, 473 (Presidio, Veracruz, Mexico).—GRISCOM, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 150 (rare in Guatemala); Ibis, 1935, 810, in text (Guatemala; Sierra de las Minas; spec.).

Micrastur ruficollis guerilla SCLATER, Ibis, 1918, 346, part (Veracruz to Nicaragua).—PETERS, Check-list Birds of World, i, 1931, 278.—STONE, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 301 (Honduras: San Pedro, Ceiba, Yaruca).—BERLIOZ, Bull. Mus. Hist. Nat. Paris, ser. 2, xi, 1939, 362 (Chiapas; Santa Rosa).—TRAYLOR, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 199, 204 (Pacaítun; Yucatán; spec.).

Climacocercus guerilla SWANN, Synopt. List Accip., pt. 3, 1919, Addenda et Corrigenda (part 1), 16, part (Mexico); Synop. Accip., pt. 1, 1921, 27, part (Mexico).

Clamosocircus guerilla guerilla SWANN, Monogr. Birds Prey, i, 1925, 151 (monogr.).—AUSTIN, Bull. Mus. Comp. Zoo., lxix, 1929, 372 (Augustine, British Honduras).

Micrastur concentricus (not *Nisus concentricus* Lesson) SCLATER, Proc. Zool. Soc. London, 1856, 285

Micrastur gilvicollis (not *Sparvius gilvicollis* Vieillot) SCLATER, Proc. Zool. Soc. London, 1858, 96 (s. Mexico; crit.).—SCLATER and SALVIN, Ibis, 1859, 218 (Guatemala).—STONE, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928, 154 (Pará, Brazil).

Micrastur ruficollis (not *Sparvius ruficollis* Vieillot) SCLATER and SALVIN, Ibis, 1859, 218 (Guatemala).— RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 78, part (Jalapa, Veracruz; Guatemala).

Micrastur xanthothorax (not *Falco xanthothorax* Temminck) SCLATER, Proc. Zool. Soc. London, 1859, 368 (Jalapa, Veracruz).

MICRASTUR RUFICOLLIS INTERSTES Bangs

Costa Rican Barred Forest Falcon

Adult male.—Similar to that of *Micrastur ruficollis guerilla*, but slightly darker above, dark neutral gray; chin and throat light neutral gray; rest of underparts darker than in *guerilla*, the dark bars somewhat broader and not thinning out so much on the lower abdomen; the white interspaces slightly clouded with pale grayish.

Adult female.—Similar to that of *Micrastur ruficollis guerilla*, but a little browner, brighter sepia above, and darker below, the dark bars wider and blacker, the chin and throat darker, mouse gray to pale, hair brown.

Juvenal (sexes alike).—Indistinguishable with certainty from those of *Micrastur ruficollis guerilla* but averaging darker, more fuscous, above. Both phases are represented.

Natal down.—Not known.

Adult male.—Wing 161–180 (168); tail 155–177 (166.1); culmen from cere 14–15 (14.9); tarsus 53.5–65 (56.1); middle toe without claw 28.5–30 (29.2 mm.).[96]

Adult female.—Wing 165–180 (173.8); tail 150–180 (167.5); culmen from cere 14–17 (15.8); tarsus 53–60 (56.8); middle toe without claw 29–31 (30 mm.).[97]

Range.—Resident from Costa Rica (Monte Redondo, Boruca, Estrella de Cartago, Jiménez, Volcán de Irazú, Talamanca, Pozo del Pital, Carrillo, Guayabo, Tenorio, Tuco, Pozo Azul de Pirris, Buenos Aires) and Panama (Panama Railway, Calovebora, Calobre, Volcán de Chiriquí; Lion Hill, Divalá, Permé) south through western Colombia (Dabeiba, La Vieja, Novita, Andagoya, San José, Las Lomitas, San Antonio, Salencio, Salento) to western Ecuador (Gualea, Chimbo, Surupata, Verdecocha, Bucay, Río de Oro, Zaruma, El Chiral).

Type locality.—La Estrella de Cartago, Costa Rica.

Micrastur gilvicollis (not *Sparvius gilvicollis* Vieillot) Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1862, 317 (Panama Railway).

Micrastur guerilla (not of Cassin) Sclater and Salvin, Proc. Zool. Soc. London, 1869, 367, part (monogr.); Nom. Av. Neotr., 1873, 120, part.—Salvin, Proc. Zool. Soc. London, 1870, 216 (Calovébora, Veraguas, w. Panama).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1875, 486, part (Calovébora and Calobre, Veraguas, and Volcán de Chiriquí, w. Panama; Costa Rica); Ibis, 1876, 3, part (diagnosis).—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, Ecuador); 1884, 310 (Surupata, Ecuador).—Gurney, List Diurn. Birds Prey, 1884, 25, part; Cat. Birds Prey, 1894, 19, part.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 126 (Monte Redondo, Costa Rica).—Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 50 (Boruca, sw. Costa Rica).—Sharpe, Hand-list, i, 1899, 246, part.—Salvin and God-

[96] Eight specimens from Costa Rica, Panama, and Ecuador.

[97] Four specimens from Costa Rica and Panama.

MAN, Biol. Centr.-Amer., Aves, iii, 1901, 110, part (Monte Redondo, Estrella de Cartago, Jiménez, Volcán de Irazú, Talamanca, Pozo del Pital, and Carrillo, Costa Rica; Volcán de Chiriquí, Calovébora, Calobre, and Lion Hill, Panama).—MENEGAUX, *in* Rivet, Rapportés, Mission Serv. Geogr. Arc Mérid. en Amer. du Sud, Zool., ix, 1911, 12 (Gualea, Ecuador).

Micrastur ruficollis guerilla SCLATER, Ibis, 1918, 346, part (Costa Rica southward).

Climacocercus guerilla SWANN, Synopt. List Accip., pt. 2, 1919, Addenda et Corrigenda (pt. 1), p. 16, part; Synop Accip., pt. 1, 1921, 27, part.

Micrastur ruficollis (not *Sparvius ruficollis* Vieillot) RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 78, part (Panama; Costa Rica).

Micrastur interstes BANGS, Auk, xxiv, 1907, 289 (La Estrella de Cartago, Costa Rica; coll. E. A. and O. Bangs); Bull. Mus. Comp. Zool., lxx, 1930, 187 (type spec. in Mus. Comp. Zool.).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 453 (Tenorio, Tuis, Pozo Azul de Pirris, Carrillo, and Buenos Aires, Costa Rica; habits).—FERRY, Publ. Field Mus. Nat. Hist., orn. ser., No. 146, 1910, 259 (Guayabo, Costa Rica; habits).

Micrastur guerilla interstes HELLMAYR, Proc. Zool. Soc. London, 1911, 1203 (Novita, Colombia).—CHAPMAN, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 241 (Dabeiba, La Vieja, Novita, San José, Las Lomitas, San Antonio, Salencio, Salento, Colombia); lv, 1926, 222 (Río de Oro, Gualea, Zaruma, El Dhiral, Ecuador).—STONE, Proc. Acad. Nat. Sci. Philadelphia, 1918, 248 (Panama Canal Zone).—SWANN, Synopt. List Accip., pt. 1, 1919, 16, part (Costa Rica).—STURGIS, Field Book Birds Panama Canal Zone, 1928, 130 (descr., habits; Panama).

Climacocercus guerilla interstes SWANN, Synopsis Accip., pt. 3, 1922, Err. et Corr., p. ii (Costa Rica to Panama).—LÖNNBERG and RENDAHL, Ark. Zool., xiv, No. 25, 1922, 33 (Gualea, Ecuador, 5,000 feet; crit.).

Clamosocircus guerilla interstes SWANN, Monogr. Birds Prey, i, 1925, 152 (monogr.).

Micrastur ruficollis interstes PETERS, Check-list Birds of the World, i, 1931, 278.—GRISCOM, Bull. Mus. Comp. Zool., lxxii, 1932, 317 (Permé, Panama); lxxviii, 1935, 302 (Panama: throughout the country).—NEUMANN, Verh. Orn. Ges. Bay., xx, 1933, 190 (crit.).

Micrastur zonothorax (not *Climacocercus zonothorax* CABANIS) Bangs, Auk, xviii, 1901, 358 (Divala, Chiriquí, w. Panama).

Subfamily POLYBORINAE: Caracaras

=Caracaridae D'ORBIGNY, Voy. Amér. Mérid., iv, pt. 3, 1839, 44.

=Polyborinae LESSON, Écho du Monde Savant, 9e ann., vi, ser. 2, Dec. 25, 1842, col. 1151.—GRAY, Hand-list, i, 1869, v, 4.—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 144.—SUNDEVALL, Öfv. Svensk. Vet.-Akad. Förh., 1872, 39.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 122.—SHARPE, Rev. Rec. Att. Classif. Birds, 1891, 78; Hand-list, i, 1899, xx, 243.—GURNEY, List Diurn. Birds Prey, 1884, xiv, 11.—BARROWS, Stand. Nat. Hist., iv, 1884, 273, 300, in text.—COUES, Key North Amer. Birds, ed. 2, 1884, 520, 539.—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1901, 124.—KNOWLTON, Birds of World, 1909, 212, 220, in text.—AMERICAN ORNITHOLOGISTS' UNION, Check-list, ed. 3, 1910, 167.—SWANN, Synopt. List Accip., pt. 1, 1919, 7.—WETMORE, Smiths. Misc. Coll., xcix, No. 4, 1940, 40.

>Polyborinae BONAPARTE, Rev. Mag. Zool., vi, 1854, 539 (includes *Polyboroides*).—SHARPE, Cat. Birds Brit. Mus., i, 1874, ix, 30 (includes Cariamae and Serpentarii!).

>Polyborinae Bonaparte, Consp. Gen. Av., i, 1850, 12 (includes *Polyboroides*).
=Polyborinae Carus, Handb. Zool., i, 1868–75, 306.—Oberholser, Outl. Classif. North Amer. Birds, 1905, 2.—Peters, Check-list Birds of World, i, 1931, 278.
=Pseudo-Vulturidae Lesson, Écho du Monde Savant, 9e ann., vi, ser. 2, No. 49, Dec. 25, 1842, col. 1151.
=Polybori Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 50; U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 4, 1875, 4, 5, 6, 7; No. 6, 1876, 452.
=Polyboreae Ridgway, Orn. Illinois, i, 1889, 427.

Ignoble Falcones of more or less vulturine habits; the more typical forms largely terrestrial and ambulatorial, therefore with relatively long legs and short toes; all (?) with a naked or downy crop, visible externally when extended with food, and, except genus *Milvago*, with head partly bare.

Maxillary tomium without a distinct, if any, subterminal "tooth" and mandibular tomium without distinct notch;[98] superciliary process of lachrymal short, extending not more than halfway across orbit; posterior margin of metasternum deeply indented by a pair of notches (these double in *Milvago*); three or more outer primaries with inner webs sinuated at about (on outermost anterior to) middle portion.

Sexes alike in coloration, but young very different from adults.

Nidification as in Falconinae, the eggs very similar, both in form and coloration.

The Polyborinae are vulturelike Falcones, whose distinctive characters are far more superficial than would be imagined from an examination of their external structure alone. Their chief characters are, in fact, teleological or adaptive, and their relationship to the true falcons therefore of much the same nature, if not in the same degree, as that of the Old World vultures to the buzzards (Buteoninae). Although far from numerous in species, the Polyborinae present great differences of external aspect, the extremes being represented by the long-legged, ambulatorial, largely terrestrial and essentially necrophagous caracaras (genus *Polyborus*) whose bearing when standing or moving on the ground strongly suggests that of the secretary bird (*Sagittarius serpentarius*) and the short-legged, insessorial, arboreal, and insectivorous *Daptrius*. These are the two most specialized types, the more generalized genus *Milvago* presenting a very close approach to the true falcons, through a New Zealand genus of the latter subfamily (*Ieracidea*).

The Polyborinae are peculiar to America and are most numerous in South America, only four of the ten known species being found north as far as Panama; and of these, one (*Milvago chimachima*) finds

[98] Though faint indications of these are observable in some genera (*Milvago* and *Phalcobaenus*) in the horny sheath, they cannot be detected in the bones of the bill.

its northern limit in Veragua, while another (*Daptrius americanus*) extends no farther northward than Guatemala and Honduras. The remaining two extend northward only to the limits of the subtropical country, or to about latitude 30°; *Polyborus cheriway* is more or less abundant along the southern border of the United States, from southern California to Florida, as well as throughout Middle America, thence southward, and also on the islands of Socorro and Tres Marias, off the western coast of Mexico, and in Cuba; *P. lutosus* is restricted to the Guadalupe Islands, off the coast of Baja California, between latitudes 28°45′ and 29°10′ N. In South America the range of the group is much more extensive, every portion of the continent, even to its extreme southern limits, being inhabited by one or more of the species.

Genus DAPTRIUS Vieillot

Ibycter Vieillot, Analyse, 1816, 22. (Type, "Petit aigle de l'Amerique, Buff."= *Falco americanus* Boddaert).

Ibicter (emendation) Kaup, Mus. Senckenburg, iii, Heft 3, 1845, 262.

Daptrius Vieillot, Analyse, 1816, 22. (Type, by special designation, *D. ater* Vieillot (Analyse, p. 68).)

Gymnops Spix, Avium Species Novae (Av. Bras.), i, 1824, 11. (Type, *G. fasciatus* Spix=*Daptrius ater* Vieillot.)

Arboreal, mostly frugivorous and insectivorous, Polyborinae with tarsus scarcely if at all longer than middle toe with claw; outer toe very much longer than inner toe, which is but little longer than hallux; inner webs of primaries very shallowly sinuated, and prevailing color uniform glossy black, the naked skin of face and throat, and the legs and feet, bright red in life.

Bill much as in *Milvago*, but cere relatively much larger, its length on top equal to more than one-third (sometimes equal to one-half) the chord of culmen, the lower portion of its anterior outline less receding; nostril small, nearly circular, with obvious, but not conspicuous central tubercle. Remiges (22) unusually developed but primaries (10) much longer than secondaries, the fourth or fifth (from outside) longest, the first (outermost) intermediate between eighth and tenth, the outer five with inner webs shallowly sinuated. Tail long and broad (about two-thirds as long as wing), much rounded, the rectrices (10) broad, with rounded tips. Tarsus about as long as middle toe with claw, covered with very irregularly hexagonal scales, then somewhat larger on acrotarsium, especially on lower portion; outer toe very much longer than inner toe, the hallux about three-fourths as long as the latter; web between basal portion of outer and middle toes well developed; claws normal, rather long and acute.

Plumage and coloration.—Plumage in general compact and lustrous, but soft and downy on posterior underparts, full but more loose-webbed on head, the loral and orbital regions, more or less of malar region,

and throat mostly naked and brightly colored (red in life), the throat, at least, with sparse, hairlike feathers, especially along median line; crop naked, but, unless distended, concealed by overlapping feathers.[99] Prevailing color plain glossy black, or blue-black, with either the abdomen, thighs, and under tail coverts or else basal portion of tail white; naked skin of head, together with legs and feet, bright red in life; the bill light yellowish.

Nidification.—Eggs 2–3 in number, buff spotted with chocolate and reddish brown; nest built among the higher branches of trees.

Range.—Continental tropical America (southern Brazil to Guatemala). (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF DAPTRIUS

a. Abdomen white; upperparts and breast glossy black.
b. Larger, wings over 350 mm. in length.
c. Upper back slightly shaded with grayish (s. Mexico to most of Panama). **D. americanus guatemalensis**, ad. (p. 582)
cc. Upper back with no grayish tone. **D. americanus guatemalensis**, juv. (p. 583)
bb. Smaller, wings under 350 mm. in length.
c. Upper back slightly shaded with grayish (Darién south to Brazil, Bolivia, and Peru)----------**D. americanus americanus**, ad. (p. 585)
cc. Upper back with no grayish tone. **D. americanus americanus**, juv. (p. 585)
aa. Abdomen black like breast and upperparts.
b. Basal portion of tail pure white, unbanded---**D. ater**, adult (extralimital) [1]
bb. Basal portion of tail white, banded with black--**D. ater**, juv. (extralimital)

[99] According to Nitzsch, the pterylosis of *Daptrius ater* is very similar to that of the Buteones; but all the pterylae are narrower, the outer branch of the inferior tract broader and quite free, with a strong hook at the end; the dorsal portion of the spinal tract short, the anterior half sparsely, the posterior half densely, feathered.

The skull of *D. americanus* resembles that of *Milvago chimango*, but has the anterior half of the premaxillary relatively slightly smaller, the posterior half a little larger, broader, and more highly arched; nostril circular, imperfectly rimmed; lachrymals narrower, more pointed. Length of skull, 96.52 mm.; breadth, 62.23; depth, 27.94–30.48. Length of sternum, 55.88–66.04; width 34.29–36.83; depth 29.21–31.75; posterior margin of sternum with two deep indentations, these sometimes connected with a pair of foramina.

[1] **Daptrius ater** Vieillot, Analyse, 1816, 68 (Brazil); Nouv. Dict. Hist. Nat., xvi, 1819, 387; Gal. Ois., 1825, pl. 5; Vigors, Zool. Journ., i, 1824, 319, 336; Stephens, in Shaw's Gen. Zool., xiii, pt. 2, 1826, 10, pl. 32 (Brazil); Lesson, Traité d'Orn., 1831, 32; Swainson, Classif. Birds, ii, 1837, 209, 308; Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 742; Bonaparte, Rev. Mag. Zool., vi, 1854, 539; Gurney, List Diurn. Birds Prey, 1884, 13; Cat. Birds Prey, 1894, 18; Peters, Proc. Biol. Soc. Washington, xliv, 1931, 25; Check-list Birds of World, i, 1931, 278.—*Ibycter ater* Gray, List Spec. Brit. Mus., ed. 2, pt. 1, 1848, 29; Handlist, i, 1869, 5, No. 27; Bonaparte, Consp. Gen. Av., i, 1850, 12; Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 29 (Río Amazon; Quito, Ecuador); Ibis, 1874, 95, in text (descr. young); Gray, Handlist, i, 1869, 5, No. 27;

DAPTRIUS AMERICANUS GUATEMALENSIS (Swann)

CENTRAL AMERICAN CARRION FALCON

Adult (sexes alike).—Forehead, crown, occiput, nape, entire upper parts of body and wings, remiges, tail feathers, lower throat, breast, upper abdomen, sides of upper abdomen, and under wing coverts black with a dull steel greenish bluish sheen, the scapulars, innermost secondaries and the feathers of the back, rump, and upper tail coverts and the outer webs of the lateral rectrices with indistinct, narrow, transverse flutings; lores, circumorbital area, chin, and upper throat bare; cheeks and auriculars blackish streaked with grayish white; lower abdomen, thighs, flanks, and under tail coverts white, sometimes tinged with pale creamy buff; bare skin of circumorbital

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Sclater and Salvin, Proc. Zool. Soc. London, 1866, 198 (upper Río Ucayali, e. Peru); Nom. Av. Neotr., 1873, 122; Proc. Zool. Soc. London, 1875, 301 (upper Río Ucayali and Pebas, e. Peru); Pelzeln, Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 392; Sharpe, Cat. Birds Brit. Mus., i, 1874, 35 (Peru); Taczanowski, Orn. Pérou, i, 1884, 103; Allen, Bull. Amer. Mus. Nat. Hist., ii, 1889, 105 (lower Río Beni, Bolivia); Loat, Ibis, 1898, 563 (Brit. Guiana); Berlepsch and Hartert, Nov. Zool., ix, 1902, 111 (Temblador and Nicare, Venezuela; fresh colors of unfeathered parts); Berlepsch, Nov. Zool., ix, 1902, 111 (Orinoco Valley, Venezuela); Nov. Zool., xv, 1908, 289 (Cayenne); Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 570 (crit. on *Gymnops fasciatus* Spix), 571 (crit. on *Gymnops aterrimas* Spix); Nov. Zool., xiv, 1907, 405 (Bora, Rio Madeira, Brazil); xvii, 1910, 409 (Calama, Brazil); Ihering and Ihering, Aves Brazil, 1907, 83 (Matto Grosso; Río Negro; Río Juruá; Amazonia; Pará; Río Grande do Sul; crit.; descr. young); Snethlage, Journ. für Orn., 1908, 22 (Río Purus, w. Brazil); Brabourne and Chubb, Birds South Amer., i, 1912, 62 (Ecuador; Colombia; Venezuela; Guiana; e. Brazil); Chubb, Birds Brit. Guiana, i, 1916, 215 (habits); Cherrie, Brooklyn Inst. Sci. Bull., 11, 1916, 341 (Guanoco, Orinoco delta); Swann, Synopt. List Accip., pt. 1, 1919, 8; Synop. Accip., pt. 1, 1921, 13; Monogr. Birds Prey, i, 1925, 75 (monogr.); Delacour, Ibis, 1923, 144 (Guarico and Apure, Venezuela).—*Ibicter ater* Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 7 (monogr); No. 36, livr. 10, 1873, 137.—*Ibicter* (*Daptrius*) *ater* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 262.—*Ibycter* (*Daptrius*) *ater* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 51; U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 6, 1876, 472 (monogr.).—*Falco aterrimus* Temminck, Planches Col., i, 1823, pls. 37, 342, and text.—*Gymnops aterrimus* Spix, Av. Bras., i, 1824, 11 (Rio Amazon, Brazil).—*Circaëtus aterrimus* Cuvier, Règne Anim., i, 1828, 338.—*Daptrius aterrimus* Lesson, Man. d'Orn., i, 1828, 75.—*Ibicter aterrimus* Kaup, Isis, 1847, 353 (monogr.), 370, 381; in Jardine's Contr. Orn., 1850, 79.—*Milvago aterrimus* Burmeister, Syst. Übers. Th. Bras., ii, 1856, 39.—(?) *Gymnops fasciatus* Spix, Av. Bras., i, 1824, 10, pl. 4 (Rio Juruá, Brazil).—*Gymnops fasciatus* Stephens, Shaw's Gen. Zool., xiv, pt. 1, 1826, 346.—(?) *Circaëtus fasciatus* Cuvier, Règne Anim., i, 1828, 338.—(?) *Pandion fasciatus* Gray, *in* Griffith's ed. Cuvier, Birds, i, 1829, 41.—(?) *Caracara fasciata* Lesson, Traité d'Orn., 1831, 35.—(?) *Ibycter fasciatus* Strickland, Orn. Syn., i, 1855, 33; Sharpe, Cat. Birds Brit. Mus., i, 1874, 34, footnote (Rio Juruá, Brazil).—(?) *Ibycter fasciatus* Gray, Handlist i, 1869, 5, No. 28.—*Pandion strigilatus* (not *Gymnops strigilatus* Spix) Gray, *in* Griffith's ed. Cuvier, Birds, i, 1829, 42.

area, lores, chin, and upper throat deep vermilion, the throat with a few black bristles; cere plumbeous; bill straw yellow; iris deep red; tarsi and toes vermilion.

Juvenal (sexes alike).—Exactly like that of the adult, but without the grayish streaks on the auriculars, or, at least, with fewer such streaks.[2]

Natal down.—Not known.

Adult male.—Wing 352–364 (358); tail 237–264 (250); culmen from cere 24.5–26.5 (25.3); tarsus 52–56 (55); middle toe without claw 43–44 (43.6 mm.).[3]

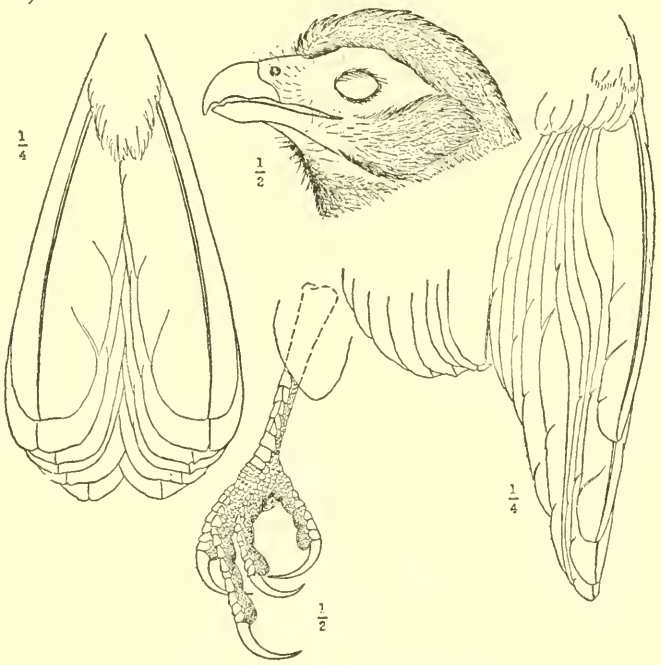

FIGURE 42.—*Daptrius americanus.*

Adult female.—Wing 357–369 (363.5); tail 243–268 (259.5); culmen from cere 25–27.5 (26.6); tarsus 59–62 (61.4); middle toe without claw 44–48 (46.2 mm.).[4]

Range.—Resident in tropical forests from Chiapas (Mapastepec), Guatemala (Naranjo, Savana Grande; Finca El Espino; Retalhuleu; Escuintla; Pacific slope); Honduras (Taulevi, San Pedro, coastal belt); Nicaragua (Los Sábalos); Costa Rica (San José, Jiménez, Tacares de Alajuela, Pozo Azul de Pirris, Peje, Guaitil, Guanacaste, Talamanca, Bonilla, Cariblanco de Sarapiquí, El Hogar, Palmar); and

[2] It may be that more extensive material will negative even this slight difference.

[3] Five specimens from Costa Rica and Panama.

[4] Five specimens from Guatemala, Costa Rica, and Panama.

Panama east to, and including, the Canal Zone (Mina de Chocha, Veraguas; Panama Railway; San Félix, Chiriquí; Lion Hill; Río Indio; Deslenguado; Cerro Bruja; Canal Zone).

Type locality.—Guatemala.

Ibycter americanus (not *Falco americanus* Boddaert) Sclater and Salvin, Ibis, 1859, 214 (Pacific coast of Guatemala; habits); Proc. Zool. Soc. London, 1864, 368 (Panama); 1870, 838 (cost of Honduras); Nom. Av. Neotr., 1873, 122, part (Guatemala, Central America).—Taylor, Ibis, 1860, 223 (Taulevi, Honduras; habits; fresh colors of unfeathered parts).—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1861, 288 (Panama); ix, 1868, 132 (San José, Costa Rica).—Frantzius, Journ. für Orn., 1869, 367 (Costa Rica).—Salvin, Proc. Zool. Soc. London, 1870, 214 (Mina de Chocha, Veraguas, Panama).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 35, part (Veragua, Panama); Hand-list, i, 1899, 244, part (Guatemala; Honduras).—Ridgway, U. S. Geol. and Geogr. Surv. Terr., Bull. 6, 1876, 470, part (Panama Railway and Chiriquí, Panama).—Gurney, List birds of Prey, 1884, 14, part.—Nutting, Proc. U. S. Nat. Mus., vi, 1884, 408 (Los Sabalos, Nicaragua).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Jiménez, Tacares de Alajuela, and Pozo Azul de Pirris, Costa Rica).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 222 (Chiapas; Mexico).—Lantz, Trans. Kansas Acad. Sci. for 1896–97 (1899), 219 (Naranjo, Guatemala).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 128, part (Savana Grande and Retalhuleu, Guatemala; San Pedro and Taulevi, Honduras; Los Sabalos, Nicaragua; Peje, Guaitil, Guanacaste, Jiménez, Taceres de Alajuela, Pozo Azul and Talamanca, Costa Rica; Chiriquí, Mina de Chocha, and Lion Hill, Panama).—Carriker, Ann. Carnegie Mus., vi, 1910, 451 (Bonilla, Pozo Azul de Pirris, Cariblanco de Sarapiquí, El Hogar, Costa Rica).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 248 (Panama Canal Zone).—Swann, Synopt. List Accip., pt. 1, 1919, 8, part (Guatemala).

Ibicter americanus Cherrie, Expl. Zool. Merid. Costa Rica, 1893, 58 (Palmar, sw. Costa Rica).

Ibycter americanus americanus Sturgis, Field Book Birds Panama Canal Zone, 1928, 126 (descr.; habits; Panama Canal Zone).

Ibycter americanus guatemalensis Swann, Synop. Accip., pt. 1, 1921, 14 (Guatemala; coll. H. Kirk Swann); Monogr. Birds Prey, i, 1925, 78 (monogr.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 185 (type spec. in Mus. Comp. Zool.).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 149 (Guatemala; Finca El Espino; Pacific slope).—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 211 (ne. Nicaragua; spec.; meas.; coloration).

Ibycter americanus guatimalensis del Campo, Anal. Inst. Biol., xiii, No. 2, 1942, 701 (Chiapas; Mapastepec; spec.).

Daptrius americanus guatemalensis Peters, Proc. Biol. Soc. Washington, xliv, 1931, 25; Check-list Birds of World, i, 1931, 278.—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (w. Panama).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 50 (spec.; Paracloté, Azuero Peninsula, Panama).

Daptrius americanus guatimalensis Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 301 (San Pedro, Honduras).

Daptrius (*Ibycter*) *americanus guatemalensis* Sassi, Temminckia, iii, 1938, 303 (Castilla, Costa Rica, 1 spec.).

Daptrius americanus americanus Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 308 (Almirante, Panama).

DAPTRIUS AMERICANUS AMERICANUS (Boddaert)

South American Carrion Falcon

Adult (sexes alike).—Exactly like that of *Daptrius americanus guatemalensis*, but smaller, and, on the average, with more grayish white in the cheeks and auriculars than the northern form, and with the mantle washed with dull grayish.

Juvenal (sexes alike).—Like the adult, but lacks the grayish tone on the nape and interscapulars.

Natal down.—Not known.

Adult male.—Wing: 323–354 (338); tail 240–263 (248.5); culmen from cere 23.6—26 (24.4); tarsus 51.8–54.7 (53.1); middle toe without claw 40.5–44.3 (42.5 mm.).[5]

Adult female.—Wing 345–349; tail 240–252; culmen from cere 24–25.5; tarsus 55–55.5; middle toe without claw 43–43 mm.[6]

Range.—Resident in the Tropical Zone from Darién, Panama (Río Chioaque, Jesucito, Cana, Obaldia, Ranchon) south through Colombia (Bogotá, Medellín, Remedios, Neche, Antioquia, Truando, Turbo, Salaqui, Puerto Valdivia, La Morelia, Tucurinca); Venezuela (San Antonio, Perico, Caura, rapids of Piritu, Maipures, rapids of Astures, Orinoco); Trinidad; British Guiana (Camacusa; Bartica; Demerara, Berbice, Ituribisi, Kamakabra, and Cako Rivers); French Guiana (St. Georges d'Oyapock); Dutch Guiana (Saramaccapolder); Brazil (Amazonia—Rio Capim, Rio Majú, Rio Jamauchim, Rio Juruá, Borba, Pará; Peixe—Boi, Rio Guama; Piauhy—Santa Philomena; Maranhão—Rio Parnahyba, Fazenda Inhuma, Alto Paranahyba, Grajahú, Rio Pardo, Rio Ilheos, Rio Thesouras; Matto Grosso—Engenho do Gama, Matto Grosso, Chapada, Rio Roosevelt; São Paulo—Ypanema, Goyabeira, Itapura, Rio Feio, Salto Grande do Paranápanema; Paraná); Ecuador (Gualaquiza, Guayaquil, Valle del Río Zamora, San Javier, Napo, Gualea, Alonguinche (9,000 feet!), Esmeraldas, Pato de Pajaro, Río de Oro, Río Suno, San José); to eastern Peru (Chyavetas, Monterico, Chanchomayo, Río Perené, Junín, upper Río Ucayali); and Bolivia (Cochabamba, Río Sécure).

Type locality.—Cayenne.

Falco americanus Boddaert, Tabl. Pl. Enl., 1783, 25 ("Cayenne . . . autres partes de l'Amérique meridionale," based on Aigle d'Amérique Buffon, Hist. Nat. Ois., i, 198; Daubenton, Planches Enlum., pl. 417; Red-throated Falcon Latham, Synop. Birds, i, 1781, 97).—Latham, Index Orn., i, 1790, 13.—Shaw, Gen. Zool., vii, pt. 1, 1809, 88.

Astur americanus Daudin, Traité d'Orn., ii, 1800, 79, in text to *Falco nudicollis*.

Ibycter americanus Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 28; Hand-list, i, 1869, 4, No. 25.—Strickland, Orn. Syn., i, 1855, 22.—Sclater, Proc. Zool. Soc. London, 1857, 16 (Bogotá, Colombia), 1858, 451 (Gualaquiza,

[5] Five specimens from Darién, Panama; Surinam; and Ecuador.

[6] Two specimens from Darién, Panama; and Venezuela.

Ecuador).—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 29 (Brazil; Gualaquiza, Ecuador; habits); Cat. Birds Prey, 1894, 18; List Diurn. Birds Prey, 1884, 14, part.—Sclater and Salvin, Proc. Zool. Soc. London, 1867, 589 (Pará, Brazil); 1868, 198 (upper Río Ucayali, e. Peru); 1873, 301 (upper Río Ucayali and Chyavetas, e. Peru); Nom. Av. Neotr., 1873, 122, part (Brazil); Proc. Zool. Soc. London, 1879, 541 (Medellín, Remédios, and Neche, Antioquia, Colombia).—Pelzeln, Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 392.—Salvin, Ibis, 1886, 77 (Bartica Grove and Camacusa, Brit. Guiana).—Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 51 (Brazil); Bull. U. S. Geol. and Georg. Surv. Terr., ser. 2, No. 6, 1876, 470, part (Truando, Colombia; Guayaquil, w. Ecuador); Hand-list, i, 1899, 244, part (Colombia; Ecuador; Amazonia; Brazil).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 35, part (Guayaquil; Pará), 455 (Demerara, Brit. Guiana).—Taczanowski, Proc. Zool. Soc. London, 1874, 550 (Monterico, Peru); Orn. Pérou, i, 1884, 103.—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Guayaquil); Nov. Zool., xv, 1908, 289 (St. Georges d'Oyapock, Cayenne).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 148 (Chapada, Matto Grosso, sw. Brazil).—Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil).—Ihering, Rev. Mus. Paulista, iii, 1899, 344 (São Paulo); vi, 1904, 450 (Rio Juruá, Amazonia; crit.).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 27 (Valle del Río Zamora, e. Ecuador).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 128, part (Turbo, Colombia; tropical South America).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 112 (Perico and rapids of Piritu, Caura, Venezuela; fresh colors of unfeathered parts).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 42 (Chanchamayo, Peru).—Hartert, Nov. Zool., ix, 1902, 605 (San Javier, nw. Ecuador).—Goeldi, Ibis, 1903, 497 (Rio Capim, ne. Brazil).—Menegaux, Bull. Mus. Hist. Nat. Paris, 1904, 108 (St. Georges d'Oyapock, Cayenne).—Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905, (1906), 571 (crit. on *Gymnops aquilinus* Spix); Nov. Zool., xv, 1908, 89 (Rio Thesouras, Brazil); xvii, 1910, 409 (Borba, Brazil).—Ihering and Ihering, Av. Brazil, 1907, 83 (São Paulo; Pará; Matto Grosso; Borba).—Brabourne and Chubb, Birds South Amer., i, 1912, 63 (Brazil; e. Peru; Ecuador; Colombia; Trinidad).—Reichenow, Die Vögel, i, 1913, 372.—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 341 (Maipures and rapids of Astures, Orinoco, Venezuela; fresh colors of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 216 (Ituribisi River, Bartica, Kamakabra River, Cako River, Demerara River, Bartica; habits); Ibis, 1919, 279 (Río Perene, Junín, Peru, 800 m.).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 239 (Salaqui, Puerto Valdivia, and La Morelia, Colombia).—Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 35 (Saramaccapolder, Surinam).—Swann, Synopt. List Accip., pt. 1, 1919, 8, part (tropical South America).—Lönnberg and Rendahl, Arkiv Zool., xiv, No. 25, 1922, 29 (near Napo, Ecuador; road to Gualea; Alonguinche, s. of Mojanda, 9,000 feet).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 164 (Tucurinca, Santa Marta, Colombia).—Bond, Auk, xliv, 1927, 563 in text (near Pará, Brazil).—Snethlage, Journ. für Orn., lxxvi, 1928,533, 572, 674 (breeding season in South America).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928, 154 (Pará, Brazil).

Ibicter americanus Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 9 (monogr.); No. 36, livr. 10, 1873, 138.—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 88 (Rio Parnahyba, etc., ne. Brazil).

Ibycter americanus americanus Swann, Synop. Accip., pt. 1, 1921, 14 (Panama to Brazil and Peru); Monogr. Birds Prey, i, 1925, 77 (monogr.)—Bangs and

Barbour, Bull. Mus. Comp. Zool., lxv, 1922, 194 (Jesusito, Darién; habits).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 220 (Esmeraldas, Pato de Pajaro, Río de Oro, Río Suno, below San José; Ecuador).—Griscom, Bull. Mus. Comp. Zool., lxix, 1929, 157 (Cana, Darién, Panama); lxxii, 1932, 318 (Obaldia, Ranchon, Panama).—Hellmayr, Publ. Field Mus., zool. ser., xii, No. 18, 1929, 453 (Maranhão, Brazil; crit.).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 103 (Matto Grosso, Brazil; many localities; crit.).

Daptrius americanus americanus Peters, Bull. Mus. Comp. Zool., lxxi, 1931, 308 (Almirante, Panama); Proc. Biol. Soc. Washington, xliv, 1931, 25; Check-list Birds of World, i, 1931, 279.—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 50, in text.—Pinto, Rev. Mus. Paulista, xxii, 1938, 87 (Brazil; distr.).—Dugand, Rev. Acad. Colomb., iii, 1940, 220 (Magadalena, Colombia).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 116 (Lower Amazonia; Obidos; Santarém; spec.).—Gyldenstolpe, Kungl. Svenska Vet.-Akad. Handl., xxii, No. 3, 1945, 37 (Rio Juruá, w. Brazil; spec.; meas.; crit.).

Daptrion americanus americanus Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (extreme e. Panama).

Falco aquilinus Gmelin, Syst. Nat., i, pt. 1, 1788, 280 (South America; based on Petit Aigle d'Amérique Buffon, Ois., i, 142; Pl. Enl., pl. 417; etc.).—Temminck, Tabl. Méth., 1836, 2.

Circaëtus aquilinus Cuvier, Régne Anim., i, 1817, 317.

Ibycter aquilinus Vigors, Zool. Journ., i, 1824, 336.—Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 10.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 742.—Bonaparte, Consp. Gen. Av., i, 1850, 12; Rev. Mag. Zool., vi, 1854, 539.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, xii, 1860, 133 (Turbo and Río Truando, Colombia; habits; voice).

Ibicter (*Ibicter*) *aquilinus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 262 (South America).

Ibicter aquilinus Kaup, Isis, 1847, 358 (monogr.), 370, 374, 381; *in* Jardine's Contr. Orn., 1850, 80.

Gymnops aquilinus Spix, Av. Bras., i, 1824, 11 (Province of Piauhy, Brazil).

Polyborus aquilinus Lesson, Man. d'Orn., i, 1828, 88.

Falco formosus Latham, Index Orn., i, 1790, 38 (South America; based on *Falco aquilinus* Gmelin; *Petit Aigle d'Amérique* Buffon, i, 1842; *Red-throated Falcon* Latham, Synopsis, i, 97, etc.).—Shaw, Gen. Zool., vii, pt. 1, 1809, 159.

Ibycter formosus Pelzeln, Verh, Zool.-bot. Ges. Wien, 1862, 134; Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 392; Ibis, 1873, 106 (note on probable type).—Sclater and Salvin, Nom. Av. Neotr., 1873, 122.

Falco nudicollis Daudin, Traité d'Orn., ii, 1800, 79 (Guiana; Trinidad), 177 (Cayenne; Guiana).—Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 153 (Rio Ilheos and Rio Pardo, Brazil).

Milvago nudicollis Burmeister, Syst. Übers. Th. Bras., ii, 1856, 37.

Ibycter leucogaster Vieillot, Nouv. Dict. Hist. Nat., xxix, 1819, 9 (Cayenne; cites *Falco formosus* Latham, *Falco aquilinus* "Linn."=Gmelin, and Pl. Enl., 427; Gal. Ois., 1825, pl. 6).—Lesson, Traité d'Orn., 1831, 33.

(?) *Ibycter gymnocephalus* d'Orbigny and Lafresnaye, Synop. Avium, 1838, 2 (Cochabamba, Bolivia).—d'Orbigny, Voy. Amér. Merid., iv, pt. 3, 1839, 50 (Cochabamba, Bolivia; Río Securi, Province of Moxos, Bolivia).—Strickland, Orn. Syn., i, 1855, 24.—Gray, Hand-list, i, 1869, 5, No. 36.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 34, footnote.—Hellmayr, Nov. Zool., xxviii, 1921, 174 (crit.; thinks it probably *Daptrius ater*).

(?) *Daptrius gymnocephalus* ? Gurney, List Diurn. Birds Prey, 1884, 13.

Genus MILVAGO Spix

Milvago Spix, Avium Species Novae (Av. Bras.), i, 1824. (Type, by monotypy, *M. ochrocephalus* Spix=*Polyborus chimachima* Vieillot.)

Parasifalco Lesson, Complément des Oeuvres de Buffon, vii, 1836, 38 (new name for *Milvago* Spix).

Parisifalco (emendation) Kaup, Isis, 1847, 352, 354.

Ibycter Reichenow, Die Vögel, i, 1913, 372, part.

Small Polyborinae (wing about 261–300 mm.) with nostril circular, near middle of cere, its central tubercle exposed; tomial tooth and notch distinctly indicated; head (including malar region) normally feathered; claws sharp and strongly curved, and planta tarsi with two longitudinal series of hexagonal scutella.

Bill moderate in size, the culmen less than to slightly more than one-third as long as tarsus, its depth at anterior portion of cere (in front of nostril) equal to more than half the length of culmen, the latter gradually decurved from base, the tip of maxilla forming a distinct but not abrupt unguis; maxillary tomial "tooth" and mandibular notch rather distinct; cere rather short, with a very oblique, doubly curved anterior outline, the upper and anterior portion distinctly convex, the lower and posterior portion on a line (vertically) with middle or even posterior edge of nostril; nostril small, circular, a little anterior to middle of upper part of cere, its central bony tubercle distinct. Wing long and rather pointed, the longest primaries considerably exceeding longest (proximal) secondaries; second to fifth primaries (from outside) longest, the first (outermost) equal to or shorter than sixth; inner webs of four outer primaries sinuated (less distinctly on fourth); primaries, 10, secondaries, 13. Tail about two-thirds as long as wing, slightly rounded, the rectrices (12) rather narrow, but with broadly rounded tips. Tarsus about one and a half times as long as middle toe without claw, covered with four longitudinal rows of very regular hexagonal scutella, the three lower scutella of the anterior inner series twisted to the front and appearing as if a continuation of the transverse scutella on upper surface of toes; outer toe very slightly longer than inner toe; claws moderate in size, moderately curved, and rather sharp.[7]

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[7] The skeleton of *Milvago* shows the following characters: Skull most like that of *Daptrius americanus*, but frontal with a very deep median valley anteriorly and suddenly much inflated posteriorly; nostril more regularly circular and more completely rimmed, its tubercle more exposed. Length of skull, 56.5 mm.; width 29.5; depth, 24.5. The sternum agrees with that of both *Daptrius* and *Polyborus* in possessing a pair of very deep single notches. It measures 43 mm. in length by 29 in greatest width. Tibia 67.5, tarsus 57 mm. The syrinx of *Milvago* is said to be similar to that of *Polyborus* except that the intrinsic muscles reach just beyond the first bronchial semiring.

Plumage and coloration.—Head normally feathered, but feathers of gular region rather loose webbed.[8]

Tail transversely mottled and more or less distinctly barred with dusky on a white ground, the tip dusky in a broad, well defined band; tail coverts white; base of primaries mottled with whitish.

Nidification.—Nest in trees, bushes, rushes, or on the ground among grasses, or other herbage. Eggs (3–4) round ovate, more or less heavily blotched and spotted with reddish brown, sometimes almost uniformly of this color.

Range.—Greater part of South America, one species extending to western Panama. (Two species.)

KEY TO THE SPECIES AND SUBSPECIES OF MILVAGO

a. Upper tail coverts pure white or pale buffy white, unmarked.
b. Upper surface brownish with a distinct ashy tinge.
c. With no white tips to the feathers of the upperparts.
M. chimango chimango, ad. (extralimital)[9]

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[8] According to Nitzsch, the pterylosis of *Milvago* is similar to that of *Daptrius*, "but stronger in all its parts, and the spinal tract different, having a remarkably short fork, with its limbs broad and strongly divergent. The posterior portion reaches this fork with its most anterior sparse feathers."

[9] **Polyborus chimango** Vieillot, Nouv. Dict. Hist. Nat., v, 1816, 260 Paraguay and Rio de la Plata); Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 6, part (monogr.).—*Polyborus chimango* d'Orbigny and Lafresnaye, Synop. Avium, 1839, 3, part (Argentina; Patagonia; Bolivia).—*Haliaetus chimango* Lesson, Traité d'Orn., 1831, 43.—*Caracara chimango* D'Orbigny, Voy. Amer. Mérid., Ois., 1835, 60, part.—*Milvago chimango* Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 13, 14, part; Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 29, part; Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 26, part (Buenos Aires, Argentina; habits); Cat. Birds Prey, 1894, 18, part; Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252 (Lake Valencia, Venezuela); Durnford, Ibis, 1876, 161 (Buenos Aires); Ridgway, U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 6, 1876, 467, part (monogr.); Withington, Ibis, 1888, 470 (Lomas de Zamora, Argentina); Crawshay, Birds Tierra del Fuego, 1907, 7 (habits); Hartert and Venturi, Nov. Zool., xvi, 1909, 238 (Barracas al Sud and Tucumán, Argentina; descr. eggs); Stone, Rep. Princeton Univ. Exped. Patagonia, ii, pt. 4, 1915, 582 (synonymy; descr. plumages; habits); Swann, Synopt. List Accip., pt. 1, 1919, 9; Chubb, Ibis, 1919, 279 (Mendoza, Argentina, 850 m.); Hellmayr, Nov. Zool., xxviii, 1921, 175 (crit.); Daguerre, El Hornero, ii, 1922, 265 (Rosas, Argentina); Serié and Smyth, El Hornero, iii, 1923, 43 (Santa Elena, Argentina); Wilson, El Hornero, iii, 1923, 85, figs. 1, 2 (nesting habits).—*Milvago chimango* Bonaparte, Consp. Gen. Av., i, 1850, 13; Rev. Mag. Zool., vi, 1854, 539; Gray, Hand-list, i, 1869, 5, No. 30, part (Brazil); Sclater and Salvin, Nom. Av. Neotr., 1873, 122, part (Argentina; Patagonia); Gurney, List Diurn. Birds Prey, 1884, 13, part; Ihering and Ihering, Av. Brazil, 1907, 84 (Rio Grande do Sul); Brabourne and Chubb, Birds South Amer., i, 1912, 63, part (se. Brazil; Uruguay; Paraguay; Argentina; Tierra del Fuego).—*Milvago chimango chimango* Swann, Synop. Accip., pt. 1, 1921, 16 (se. Brazil to Tierra del Fuego; Monogr. Birds Prey, i, 1925, 91 (monogr.).—Peters, Check-list Birds of World, i, 1931, 279.—*Ibicter* (*Milvago*) *chimango* Kaup, Mus. Senckenb., iii, Heft, 3, 1945, 262.—*Ibicter chimango* Kaup,

cc. With white tips to the feathers of the upperparts.

M. chimango chimango, juv. (extralimital)

bb. Upper surface dark brown with no ashy tinge.

c. With no white tips to the feathers of the upperparts.

M. chimango temucoensis, ad. (extralimital)[10]

cc. With white tips to the feathers of the upperparts.

M. chimango temucoensis, juv. (extralimital)

aa. Upper tail coverts barred with dark brown.

b. Upper tail coverts white, not buff.

c. Underparts of body immaculate pale buff.

M. chimachima chimachima, ad. (extralimital)[11]

Isis, 1847, 356 (monogr.), 370, 375, 381; Sharpe, Cat. Birds Brit. Mus., i, 1874, 41, part (Maldonado, Uruguay; Port Desire, Argentina).—[*Ibicter*] *chimango* Kaup, Isis, 1847, 370; *in* Jardine's Contr. Orn., 1850, 79.—*Aquila pezopora* Meyen, Nova Act. Acad. Caes. Leop.-Carol. Nat. Curios, xvi, 1834, 62, pl. 6 (Chile; "*pezoporos*" on plate).—*Milvago pezoporos* Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 13.—*Polyborus hyperstictus* "Gould" Sharpe, Cat. Birds Brit. Mus., i, 1874, 42 in text (Port Desire, Patagonia).

[10] **Polyborus chimango** d'Orbigny and Lafresnaye, Synop. Avium, 1839, 3 part (Chile); (?) Tschudi, *in* Wiegmann's Arch. für Naturg., x, pt. 1, 1844, 263 (Peru).—*Polyborus chimango* Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 6, part (monogr.).—*Caracara chimango* d'Orbigny, Voy. Amér. Merid., Ois., 1835, 60, part (s. Chile).—*Milvago chimango* Germain, Proc. Boston Soc. Nat. Hist., vii, 1860, 309 (Chile; nesting habits); Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 26, part (Chile); List Diurn. Birds Prey, 1884, 13, part; Cat. Birds Prey, 1894, 18, part; Gray, Hand-list, i, 1869, 5, No. 30, part (Chile); Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 50 (Chile); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 6, 1876, 467, part (Santiago and Valdivia, Chile); Sclater and Salvin, Nom. Av. Neotr., 1873, 122, part (Chile); Brabourne and Chubb, Birds South Amer., i, 1912, 63, part (Chile).—(?) *Milvago chimango chimango* Päfsler, Journ. für Orn., 1922, 448 (Coronal, Chile; habits; fresh colors of unfeathered parts).—*Milvago chimango temucoensis* Sclater, Bull. Brit. Orn. Club, xxxviii, No. 231, 1918, 43 (Temuco, Cautin, s. Chile; coll. Brit. Mus); Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., pt. 1, 1921, 16; Monogr. Birds Prey, i, 1925, 93 (monogr.); Peters, Check-list Birds of World, i, 1931, 279; Hellmayr, Birds Chile, 1932, 287 (Concepción south to Straits of Magellan, Chile).

[11] **Polyborus chimachima** Vieillot, Nouv. Dict. Hist. Nat., v. 1816, 259 (Paraguay; ex *Chimachima* Azara, Apunt., i, 1802, 50); d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 63 (Bolivia, etc.; habits); d'Orbigny and Lafresnaye, Synop. Avium, 1839, 3 (Paraguay; centr. Bolivia); Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 5 (monogr.); No. 36, livr. 10, 1873, 137.—*Haliaetus chimachima* Lesson, Traité d'Orn., 1831, 43.—*Milvago chimachima* Hartlaub, Syst. Index Azara Apunt., 1847, 1; Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 29 (Bahia, Brazil); Hand-list, i, 1869, 5, No. 29; Bonaparte, Consp. Gen. Av., i, 1850, 12; Rev. Mag. Zool., vi, 1854, 539; Strickland, Orn. Syn., i, 1855, 19; Pelzeln, Verh. z.-b. Ges. Wien, 1862, 137; Reis. *Novara*, Vög., 1865, 6 (Brazil); Orn. Bras., Abth. 1, 1868, 2; Abth. 4, 1870, 392; Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 27, part (Bahia; habits); List Diurn. Birds Prey, 1884, 13, part; Cat. Birds Prey, 1894, 18, part; Sclater and Salvin, Proc. Zool. Soc. London, 1866, 198 (upper Rio Ucayali, e. Peru); 1867, 589 (Mexiana Island and Barra, Brazil); 1873, 302 (upper Rio Ucayali and Santa Cruz, e. Peru);

cc. Underparts of body heavily marked with dark brown.
M. chimachima chimachima, juv. (extralimital)

bb. Upper tail coverts buff to warm buff.

c. Underparts immaculate buff.

Nom. Av. Neotr., 1873, 122, part (South America to Brazil); Proc. Zool. Soc. London, 1879, 639 (Santa Cruz and Chiquitos, Bolivia); Ridgway, Proc. Boston Soc. Nat. Hist., 1873, 50 (Brazil); U. S. Geol. and Georgr. Surv. Terr., Bull. 6, ser. 2, 1876, 467, 468, part (Brazil; Paraguay; synonymy; range); Cabanis, Journ. für Orn., 1874, 230 (Brazil); Allen, Bull. Essex Inst., viii, 1876, 82 (Anjos, lower Amazon); Bull. Amer. Mus. Nat. Hist., v, 1893, 148 (Chapada, Matto Grosso, Brazil); Taczanowski, Orn. Pérou, i, 1884, 99; Berlepsch, Journ. für Orn., 1887, 122 (Paraguay); Berlepsch and Ihering, Zeitschr. Orn., 1885, 172 (Taquara, Rio Grande do Sul, s. Brazil); Riker, Auk, viii, 1891, 161 (Santarém, Brazil); Koenigswald, Journ. für Orn., 1896, 386 (São Paulo, s. Brazil); Holmberg, Segundo Censo Argent., 1898, 504; Sharpe, Hand-list, i, 1899, 244, part (Brazil; Amazonia); Salvadori, Boll. Mus. Zool. Torino, xv, 1900, 14 (Urucum, Matto Grosso, Brazil); Goeldi, Ibis, 1903, 497 (Rio Capim, ne. Brazil); Ihering, Rev. Mus. Paulista, vi, 1904, 337 (Paraguay); Hellmayr, Abh. Bayer. Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 570 (crit. as to *Gymnops strigilatus* Spix), 571 (crit. as to *Milvago ochrocephalus* Spix); Nov. Zool., xxviii, 1921, 175 (crit.); Ihering and Ihering, Av. Brazil, 1907, 84 (Rio Grande do Sul; Rio de Janeiro; São Paulo; Bahia; Pará; Amazonia; Rio Negro; crit.); Hartert and Venturi, Nov. Zool., xvi, 1909, 237, pl. 3, fig. 15 (Mocovi, Argentina; descr. nest and eggs); Reiser, Denkw. Mat.-Nat. Wiss. Wien, 1910, 88 (Serra and Rio Grande, ne. Brazil); Grant, Ibis, 1911, 334 (Puerto San Juan, Paraguay); Brabourne and Chubb, Birds South Amer., i, 1912, 63, part (Uruguay; Paraguay; Brazil); Dabbene, Bol. Soc. Physis. Buenos Aires, i, 1913, 298 (Mocovi, Campo, etc., Argentina); Bertoni, Fauna Paraguaya, 1914, 42 (Puerto Bertoni).—*Milvago chimachima chimachima* Swann, Synop. Accip., pt. 1, 1921, 15, part (Brazil; Amazonia); Peters, Check-list Birds of World, i, 1931, 279.—*Ibicter* (*Milvago*) *chimachima* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 26.—*Ibicter chimachima* Kaup, Isis, 1847, 354 (monogr.), 370, 375, 381; *in* Jardine's Contr. Orn., 1850, 79.—*Ibycter chimachima* Sharpe, Cat. Birds Brit. Mus., i, 1874, 39, part (Bahia, Mexiana Island, and Barra do Rio Negro, Brazil); Goeldi, Ibis, 1897, 161 (Amapá, ne. Brazil); Ihering, Rev. Mus. Paulista, iii, 1899, 343 (Ypiranga, São Paulo, s. Brazil); iv, 1900, 91 (descr. nest and eggs), 162 (Cantogallo, São Paulo), 269 (measurements of eggs); Hagmann, Zool. Jahrb., 1907, 20 (Mexiana Island, Brazil).—*Falco crotophagus* Maximilian, Reise nach Bras., i, 1820, 297 in text, ii, 199 ("Caracara" . . . "oder degener").—*Falco degener* Lichtenstein, Verz. Doubl., 1823, 61 (Pará and São Paulo, Brazil; cites "*Chimachima* Azara, 6"); Maximilian, Beitr. Naturg. Bras., iii, pt. 1, 1830, 162 (Cabo Frío; Coral de Battuba; Marica; Sagoarema; Ponta Negra; Ararauna).—*Polyborus degener* Vigors, Zool. Journ., i, 1824, 336; Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 11; xiv, pt. 1, 1826, 346; Lesson, Man. d'Orn., i, 1828, 88.—*Milvago ochrocephalus* Spix, Av. Bras., i, 1824, 12, pl. 5 (Capitania, São Paulo, s. Brazil); Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 13; Peale, Rep. U. S. Expl. Exped. (Wilkes), 1848, 61; Burmeister, Syst. Übers. Th. Bras., ii, 1856, 36.—*Polyborus ochrocephalus* Jardine and Selby, Illustr. Orn., 1827, pl. 2.—*Haliaëtus ochrocephalus* Cuvier, Règne Anim., i, 1829, 327.—*Gymnops strigilatus* Spix, Av. Bras., i, 1824, 10, pl. iv a (Xingú, Brazil); Stephens, *in* Shaw's Gen. Zool., xiv, pt. 1, 1826, 346.—*Milvago chimachima strigilata* Swann, Synop. Accip., pt. 3, 1922. Err, et Add. (e.c. Brazil, n. to Amazonia); Monogr. Birds Prey, i, 1925, 89 (monogr).

d. Back and upper surface of wings darker—fuscous-black.
M. chimachima paludivagus, ad. (extralimital) [12]

dd. Back and upper surface of wings lighter—dark sepia to fuscous (Panama to Colombia, Venezuela, and British Guiana).
M. chimachima cordatus, ad. (p. 592)

cc. Underparts heavily marked with dark brown.
M. chimachima paludivagus, juv., (extralimital)
M. chimachima cordatus, juv. (p. 593) [13]

MILVAGO CHIMACHIMA CORDATUS Bangs and Penard

NORTHERN CARRION FALCON

Adult (sexes alike).—Forehead, crown, occiput, nape, lores, cheeks, auriculars, chin, throat, sides of neck, breast, abdomen, sides, flanks, thighs, under tail coverts, and under wing coverts pinkish buff to warm buff, some of the feathers of the crown, occiput, and nape with pale tawny-olive to pale Saccardo's umber edgings, which produce a rather faintly streaked appearance; the upper eyelashes and a narrow line extending from the posterior end of the eye to the posterolateral corner of the crown black; the feathers of the hind margin of the nape broadly fuscous subterminally, tipped with warm buff or pinkish buff; scapulars, interscapulars, back, rump, upper wing coverts, and remiges dark sepia to dark fuscous, the feathers narrowly tipped (in fresh plumage) with pale buffy white; primaries pale pinkish buff to pale warm buff on both webs on their basal half or more, the light areas reaching the outer webs just proximal to their emargination; the pale areas mottled with fuscous on the outer web, indistinctly barred (five to seven bars) with drab to hair brown on the inner webs, the bars becoming darker and broader on the inner primaries, dark sepia on the innermost pair; the outer secondaries incompletely barred with four to six broad pale warm buff bars on the basal two-thirds of their inner webs, the bars not reaching the shaft; fourth and fifth primaries (from outside) the longest, then the third, sixth, second, seventh; upper tail coverts pale warm buff transversely spotted with fuscous, sometimes immaculate; rectrices warm buff, usually paler, almost cartridge buff on the median pair, broadly banded subterminally with fuscous (the band 30–50 mm. wide) and crossed by from seven to nine narrower

[12] **Milvago chimachima** (not of Vieillot) Berlepsch, Nov. Zool., xv, 1908, 289 (Apfrouague, Cayenne); Sharpe, Hand-list, i, 1899, 244, part (Guianas); Brabourne and Chubb, Birds South Amer., i, 1912, 63, part (Guianas).—*Milvago chimachima chimachima* Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 35 (Paramaribo, Surinam); Swann, Synop. Accip., pt. 1, 1921, 15, part (Guianas).—*Milvago chimachima paludivaga* Penard, Proc. New England Zool. Club, viii, 1923, 36 (Erste Rijweg, Paramaribo, Surinam; coll. T. E. Penard, now in Mus. Comp. Zool.).—*Milvago chimachima paludivagus* Peters, Check-list Birds of World, i, 1931, 279.

[13] I know of no certain way of telling the young of these two races apart.

bands (not more than 10 mm. in width) anterior to the subterminal area; these bands paling along their transverse middles to grayish hair brown, forming "shadow bars" on the median pair of feathers; solid and increasingly broad on the outer webs of the more lateral ones, narrower on the inner webs; the outer webs of the outermost pair or two solidly and broadly margined with dark fuscous, due to the fusion of the bars; iris clay color to dark mummy brown; bare orbital skin deep chrome to lemon yellow; cere orange to lemon yellow; base of bill surphur yellow; rest of bill very pale blue to pea green becoming dusky olive-slate toward the yellow base.

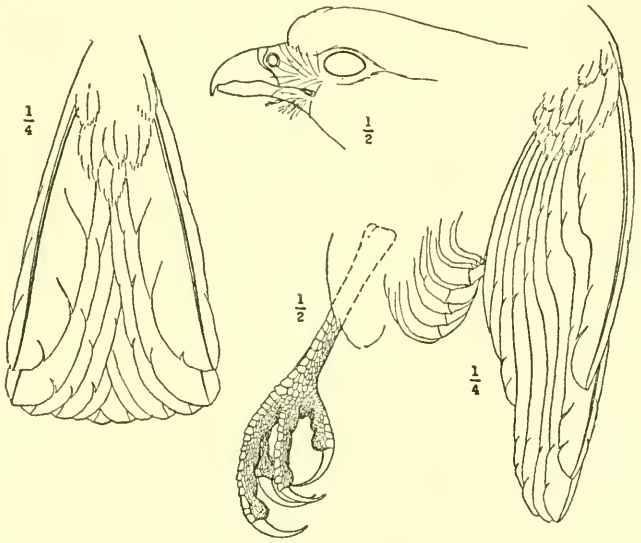

FIGURE 43.—*Milvago chimachima.*

Juvenal (sexes alike).—Feathers of forehead and superciliary edge of crown warm buff with dusky bases; those of crown, occiput, and nape dark mummy brown to dark fuscous with terminal diamond-shaped warm buff spots, the long axes of which are formed by the shafts of the feathers, those of the nape longer, less angular (less diamond shaped); upper wing coverts, scapulars, interscapulars, back, rump, and remiges as in adult, but more rufescent, bister to warm sepia, darkening to dark mummy brown on the remiges, and all the light areas (tips, basal areas of remiges, etc.) more or less washed with pinkish cinnamon (in worn specimens this is not very noticeable); upper tail coverts and rectrices as in adult, but deeper, more cinnamon-buff, the dark bars on the rectrices browner, more dark bister, the paler portions of the "shadow bars" on the median pair of tail feathers tawny-olive, instead of grayish hair brown as in adults;

cheeks and auriculars dark mummy brown to fuscous; feathers of chin, throat, breast, sides, and upper abdomen mummy brown with the shafts pale, dusty warm buff, the color spreading out to form a broad, large medioterminal spot of the same, giving rise to a buff and dark brown streaked appearance; feathers of the lower abdomen, flanks, and thighs dusky warm buff, irregularly banded with two or more bars of mummy brown; sometimes nearly immaculate; lower portion of thighs and the under tail coverts usually immaculate warm buff.

Natal down.—Not known.

Adult male.—Wing 269–298 (284.5); tail 181–204 (191.2); culmen from cere 20–24 (22.1); tarsus 52–59 (53.9); middle toe without claw 37–41 (39 mm.).[14]

Adult female.—Wing 278–306 (291.3); tail 190–211 (196.5); culmen from cere 20–24 (22.8); tarsus 52–61 (56); middle toe without claw 37.5–43 (39.8 mm.).[14]

Range.—Resident in dry, tropical, open grasslands and thinly forested areas from Panama (Calobré, Chepo, Bay of Panama, Soná, San Miguel and Saboga Islands, Canal Zone) and Colombia (Bogotá, Ocaña, Cauca, Valencia, Bucarange, San Antonio, Cali, La Manuelita, La Palma, Chicoral, Honda, Río Frío, Calamar, Barrigon, Boyacá, Espinal, Caquetá River, Jiménez) eastward through Venezuela (Altagracia, Caicara, Quiribana de Caicara, Ciudad Bolívar, Orinoco Valley, Guarico, Apure, Cumanacoa, Puerto La Cruz, Santa Lucía, Maripa, Río Caura, La Eluncia); to British Guiana (Berbice, Demerara, Merumé Mountains). Recorded vaguely in literature from Costa Rica as well, but there seem to be no definite records.

Type locality.—San Miguel Island, Pearl Islands, Bay of Panama.

Milvago chimachima (not *Polyborus chimachima* Vieillot) Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 741.—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 27, part (Bogotá, Colombia); List Diurn. Birds Prey, 1884, 13, part; Cat. Birds Prey, 1894, 18, part.—Salvin, Proc. Zool. Soc. London, 1870, 214 (Calobre, Panama); Ibis, 1886, 78 (Merumé Mountains, British Guiana).—Wyatt, Ibis, 1871, 121 (Ocaña, Colombia), 382 (coast region, Colombia).—Sclater and Salvin, Nom. Av. Neotr., 1873, 122, part (Panama); Proc. Zool. Soc. London, 1879, 541 (Cauca, Colombia).—Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 6, 1876, 468, part (Veraguas, Panama).—Salvin and Godman, Ibis, 1880, 177 (Valencia, Sierra Nevada de Santa Marta, Colombia; habits); Biol. Centr.-Amer., Aves, iii, 1901, 127, part (Colombia; Calobre, Chepo, Bay of Panama, Panama).—Berlepsch, Ibis, 1884, 437 (Angostura, Venezuela); Journ. für Orn., 1884, 316 (Bucaramanga, Colombia).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Costa Rica).—Sharpe, Hand-list, i, 1899, 244, part.—Bangs, Proc. New England Zool. Club, iii, 1902, 20 (Sona, Panama).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 112

[14] Fourteen male and 16 female specimens from Panama, Colombia, and Venezuela.

(Altagracia, Caicara, Quiribana de Caircara, and Ciudad Bolívar, Venezuela; fresh colors of unfeathered parts).—Thayer and Bangs, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (San Miguel and Saboga Islands, Bay of Panama).—Brabourne and Chubb, Birds South Amer., i, 1912, 63, part (Colombia; Venezuela; Brit. Guiana).—Cherrie, Bull. Brooklyn Inst. Sci., ii, 1916, 341 (Orinoco Valley, Venezuela; habits; food; colors of soft parts).—Chubb, Birds Brit. Guiana, i, 1916, 217 (habits).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 239 (San Antonio, Cali, La Manuelita, La Palma, Chicoral, Honda, Calamar, and Barrigon, Colombia; crit.).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 248 (Panama Canal Zone).—Swann, Synopt. List Accip., pt. 1, 1919, 9 part (Guiana).—Delacour, Ibis, 1923, 145 (Guárico and Apure, Venezuela; food).—Young, Ibis, 1925, 467 (Berbice, Brit. Guiana; nest and eggs); 1929, 6 (coast of British Guiana; habits; nest and eggs).

Milvago chimachima chimachima Swann, Synop. Accip., pt. 1, 1921, 15, part (Panama to Guiana).

Milvago chimachima cordata Bangs and Penard, Bull. Mus. Comp. Zool., lxii, 1918, 35 (San Miguel Island, Bay of Panama; coll. Mus. Comp. Zool.).—Swann, Synopt. List Accip., pt. 3, 1920, 115; Synop. Accip., pt. 1, 1921, 15 (Panama); Monogr. Birds of Prey, i, 1925, 89 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 163 (Bonda, Santa Marta, Colombia).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 127 (descr.; habits; Panama Canal Zone).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 369 (Río Frío, Magdalena, Colombia).

Milvago chimachima cordatus Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 185 (type spec. in Mus. Comp. Zool.).—Peters, Check-list Birds of World, i, 1931, 279.—Griscom, Auk, l, 1933, 303 (Panama: Río Chepo, Darién; spec.); Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (arid tropical areas on Pacific slope of Panama).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 51 (spec.; Paracote, Azuero Peninsula, Panama).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 187 (Venezuela; seen near Ocumare de la Costa and El Sombrero); Smiths. Misc. Coll., cvi, No. 1, 1946, 29 (Pearl Islands, Panama).—Dugand, Rev. Acad. Colomb., iii, 1940, 221 (Magdalena-Caribbean area, Colombia; very common).—Murphy, Auk, lxii, 1945, 116 (Pearl Islands, Panama).

Ibycter chimachima Sharpe, Cat. Birds Brit. Mus. i, 1874, 39, part (Bay of Panama), 455, part (Demerara, Brit. Guiana).—Reichenow, Die Vögel, i, 1913, 373.

Milvago chimango (lapsus) Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252 (Lake of Valencia, Venezuela).

Genus POLYBORUS Vieillot [15]

Polyborus Vieillot, Analyse, 1816, 22. (Type, by monotypy, "Caracara Buff."= *Falco tharus* Molina.)

Poliborus (emendation) Vieillot, Nouv. Dict. Hist. Nat., v, 1816, 256

[15] Hellmayr and Conover (Cat. Birds Amer., pt. 1, No. 4, 1949, 281) have given reasons for considering *Caracara* Merrem as the proper generic name for this group in place of *Polyborus*. While it is undeniable that the "Caracara" of Buffon is *Circus buffoni*, and that it is the only included species listed by Vieillot for his genus *Polyborus*, the described generic characters were taken from *Falco plancus*. Because of this ambiguity I retain the name *Polyborus* until the A. O. U. Committee on Classification and Nomenclature has acted on it.

Caracara Cuvier, Règne Anim., i, Dec. 1816, 316, in text (in vernacular only!).—Merrem, *in* Ersch and Gruber's Encycl., sect. I, xv, 1826, 159.—Lesson, Man. d'Orn., i, 1828, 87.

Polyborinae with relatively long neck and legs, ambulatory (gradient) progression, with the bill deep and much compressed and with narrow (linear) oblique nostrils in upper anterior portion of cere.

Bill deep (vertically) and compressed, the depth of maxilla at anterior edge of cere equal to about half the chord of culmen, its width at same point equal to about two-thirds its depth; culmen strongly convex, the tip of maxilla strongly, but not acutely uncinate; maxillary tomium nearly straight to faintly concave, but with more or less distinct slight sinuosities, especially near base of unguis, where the falconine "tooth" is indicated by a faint concavity; mandibular tomium nearly straight for greater part, but distinctly though slightly convex distally, the subterminal portion, like that of the maxillary tomium, more or less irregular or "wavy," anterior outline of cere vertical, nearly straight; nostril small, linear-oblong, obliquely vertical (its upper end the posterior one), situated in upper anterior portion of cere. Wing long and pointed, primaries nearly twice as long as secondaries, rigid, the third to fourth (from outside) longest, the first (outermost) shorter than sixth (sometimes shorter than seventh); the inner webs of the outer four distinctly and of the fifth indistinctly sinuated; remiges twenty-four. Tail about two-thirds as long as wing, slightly rounded or nearly truncate, the rectrices (12) rather rigid, with firm webs and strong shafts, their tips broadly rounded. Tarsus much longer than middle toe without claw, the acrotarsium with 4 to 6 large transverse scutella on lower portion (continuous with those on upper side of toes), the remaining portion with two parallel series of alternating hexagonal, more or less longitudinal scales, the planta tarsi with smaller, more quadrate, scales, for the most part arranged in two parallel series; outer toe longer than inner toe, the latter longer than hallux; claws normal, but rather long and not strongly curved.

Skull most like that of *Phalcoboenas*, but premaxillaries more compressed, dome of cranium more depressed with upper outline more horizontal, and the nasal bones and palatines of different form. Nostrils closely approximated in upper edge of the nasals, oblong and oblique, their upper end the posterior one. Posterior outline of palatines nearly truncate with posterolateral outline forming an abrupt angle. Mandible with an acute-oblong vacuity posterior to the middle portion. Posterior margin of sternum with a pair of widely separated, very deep, rounded indentations. Tarsus much longer than femur, in proportion to tibia=3.50:4.50. First and second bronchial semirings very prominent and wide apart, thus leaving a

very spacious interannular membrane, to which the intrinsic muscles are attached, the last few tracheal rings being fused mesially in front and behind.

Plumage and coloration.—Lores, orbital, suborbital, and malar regions and chin naked, with rather sparse fine bristles; entire cere behind and below nostrils scantily covered with fine hairs; pileum with well-developed normal feathers, these becoming considerably elongated on occiput, where forming a rather distinct, depressed crest; feathers of nape and hindneck well developed but softer and broader.[16] Tail dull white to pale isabella color, narrowly barred with grayish or dusky and crossed by a broad terminal band of dark brown or black; adults with pileum and greater portion of body and wings dark brown or blackish, the cheeks, neck, chest, and tail coverts dull white to isabella color, the hindneck, breast, and back (sometimes wing coverts and abdomen also) barred with dull white or isabella color and dusky; young with pileum plain dull brownish, the rest of plumage (except tail, et cetera) striped with dull brownish and dull whitish or buffy.

Nidification.—Nest in trees; eggs (usually 2–3) rounded ovate, heavily spotted with reddish brown (sometimes uniformly this color, rarely showing a whitish ground color).

Range.—Southern border of United States (Florida to Arizona) and southward to southern extremity of South America; Guadalupe and Tres Marías islands, northwestern Mexico, but not in West Indies. (Three species, with additional subspecies.)

KEY TO THE SPECIES AND SUBSPECIES OF POLYBORUS

a. Breast barred or, at least, transversely spotted with dark brown or black.
b. The abdomen, thighs, and flanks barred with dark brown like the breast (Guadalupe Island; extinct)..... **P. lutosus**, ad. (p. 610)
bb. The abdomen, thighs, and flanks unbarred, black or fuscous, or only the upper abdomen barred, the rest blackish.
c. Scapulars and median upper wing coverts solid brownish or blackish, the upper tail coverts unbarred white.
d. Back and wings black to very dark fuscous-black (Pearl Islands and Darién south to Brazil and Peru).
P. cheriway cheriway, ad. (p. 607)
dd. Back and wings not black but brown to very dark fuscous.
e. Back and wings paler, sepia (Tres Marias Islands).
P. cheriway pallidus, ad. (p. 609)
ee. Back and wings darker, fuscous to dark fuscous (Florida, Gulf States, West Indies, Mexico to Panama Canal Zone).
P. cheriway audubonii, ad. (p. 600)

[16] The pterylosis of *Polyborus* is said (by Nitzsch, Pterylographia, p. 63) to be peculiar "in having the dorsal portion of the spinal tract elliptically dilated upon the caudal pit, where it incloses a narrow lanceolate insular space—a structure which I have never met with elsewhere among the Falcons [Falcones]."

cc. Scapulars and median upper wing coverts barred with blackish and whitish.

d. Size larger, wings 410 mm. or more.

P. plancus plancus, ad. (extralimital) [17]

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[17] **Falco plancus** J. F. Miller, Var. Subj. Nat. Hist., 1777, pl. 17 (Tierra del Fuego); Gmelin, Syst. Nat., i, pt. 1, 1788, 257.—*Vultur plancus* Latham, Index Orn., i, 1790, 8; Shaw, Gen. Zool., vii, pt. 1, 1809, 41 (Christmas Sound, Tierra del Fuego); Vieillot, Nouv. Dict. Hist. Nat., xiv, 1817, 239.—*Falco plancus* Daudin, Traité d'Orn., ii, 1800, 42.—*Polyborus plancus* Brabourne and Chubb, Birds South Amer., i, 1912, 62, part (Bolivia to Straits of Magellan); Stone, Rep. Princeton Univ. Exped. Patag., ii, pt. 4, 1915, 555 (synonymy; descr.; habits); Marelli, El Hornero, i, 1918, 77 (Curuzú Cutiá, Corrientes, Argentina); Dabbene, El Hornero, i, 1918, 94 (Martín García Island, Argentina); Swann, Synopt. List Accip., pt. 1, 1919, 7, part; Synop. Accip., pt. 1, 1921, 12, part; Wace, El Hornero, ii, 1921, 202 (Falkland Islands, breeding); Daguerre, El Hornero, ii, 1922, 265 (Rosas, Argentina); Serié and Smyth, El Hornero, iii, 1923, 43 (Santa Elena, Argentina).—*Falco tharus* Molina, Saggio Stor. Nat. Chile, 1782, 264 (Chile); Gmelin, Syst. Nat., i, pt. 1, 1788, 254; Latham, Index Orn., i, 1790, 16; Daudin, Traité d'Orn., ii, 1800, 41; Shaw, Gen. Zool., vii, pt. 1, 1809, 170; Sonnini and Vieillot, Nouv. Dict. Hist. Nat., xiv, 1817, 240.—*Circaëtos tharus* Lichtenstein, Nomencl. Mus. Berol., 1854, 3.—*Polyborus tharus* Strickland, Orn. Syn., i, 1855, 19, part; Gray, Hand-list, i, 1869, 6, No. 35, part (Straits of Magellan); Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 145, part; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 177, footnote, part (synonymy; descr.); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 6, 1876, 455, part (monogr.); Man. North Amer. Birds, 1887, 254, part; Sclater and Salvin, Nom. Av. Neotr., 1873, 123, part; Sharpe, Cat. Birds Brit. Mus., i, 1874, 31, part (Hermit Island, Straits of Magellan); Coues, Birds Northwest, 1874, 370, footnote (synonymy); Durnford, Ibis, 1876, 161 (Buenos Aires; habits; descr. nest); Gibson, Ibis, 1879, 415 (Cape San Antonio, Buenos Aires; habits, descr. eggs); Gurney, List Diurn. Birds Prey, 1884, 12, part; Cat. Birds Prey, 1894, 18, part; Schalow, Zool. Jahrb., Suppl. iv, Heft 3, 1898, 692 (Puerto Rosario, etc., Chile; Punta Arenas, Patagonia; crit.); Crawshay, Birds Tierra del Fuego, 1907, 1 (habits); Hartert and Venturi, Nov. Zool., xvi, 1909, 237 (Barracas al Sud and Los Vasques, Tucumán, Argentina; descr. eggs).—(?) *Polyborus tharus* var. Sclater, Proc. Zool. Soc. London, 1876, 333, pl. 25.—*Polyborus brasiliensis* Vigors, Zool. Journ., i, 1824, 320; Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 11; Gould, Zool. Voy. *Beagle*, pt. 3, 1841, 9; Kaup, Isis, 1847, 349, part (monogr.), 370, 373, 375, 381, part; *in* Jardine's Contr. Orn., 1850, 78; Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 31, part (Straits of Magellan; Hermit Island); Bonaparte, Consp. Gen. Av., i, 1850, 13, part (excl. syn. *cheriway* Jacquin); Rev. Mag. Zool., vi, 1854, 539; Schlegel, Mus. Pays-Bas, ii, No. 9, 1863, 2, part (monogr.); No. 36, 1873, 137.—*Polyborus* (*Polyborus*) *brasiliensis* Kaup, Mus. Senckenb., iii, Heft iii, 1845, 262.—*Vultur cheriway* (not *Falco cheriway* Jacquin, 1784) Latham, Index Orn., i, 1790, 8.—*Falco cheriway* Lichtenstein, Verz. Doubl., 1823, 60, part (Montevideo, Uruguay).—*Aquila cheriway* Meyen, Beitr., 1834, 66.—*Polyborus vulgaris* d'Orbigny, Voy. Amer. Mérid., pt. 3, 1839, 55; Hellmayr, Nov. Zool., xxviii, 1921, 175 (crit.). d'Orbigny and Lafresnaye, Synopsis Avium, 1839, 3, part (Argentina; Chile; Bolivia).—*Caracara vulgaris* Lesson, Traité d'Orn., 1831, 34, pl. 9, fig. 2.—*Pandion caracara* Gray (G. R.), *in* Griffith's ed. Cuvier's Anim. Kingdom, vi, 1824, 235.—*Polyborus plancus plancus* Swann, Monogr. Birds Prey, i, 1925, 67 (monogr.);

dd. Size smaller; wings 405 mm. or less.

P. plancus brasiliensis, ad. (extralimital) [18]

aa. No bars or transverse spots on the underparts.

b. Chin, throat, and upper breast whitish, unmarked anterior to lower throat.

c. Abdomen dark sepia in ground color.

P. cheriway cheriway, juv. (p. 607)

P. cheriway audubonii, juv. (p. 602)

cc. Abdomen paler, dresden brown ..... **P. cheriway pallidus**, juv. (p. 609)

bb. Chin, throat, and upper breast not whitish.

c. Breast and abdomen dark sepia, with very conspicuous buffy white streaks especially on the breast.

P. plancus plancus, juv. (extralimital)

P. plancus brasiliensis, juv. (extralimital)

cc. Breast and abdomen dull fulvous isabelline, with indistinct streaks of somewhat paler isabelline ..... **P. lutosus**, juv. (p. 610)

Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 95 (habits; crit.); Peters, Check-list Birds of World, i, 1931, 280.

[18] **Polyborus plancus** Brabourne and Chubb, Birds South Amer., i, 1912, 62, part (Peru, s. Brazil); Swann, Synopt. List Accip., pt. 1, 1919, 7, part; Synop. Accip., pt. 1, 1921, part.—*Polyborus tharus* Strickland, Orn. Syn., i, 1855, 19, part; Gray, Hand-list, i, 1869, 6, No. 35, part (Brazil); Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 145, part; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 177, footnote, part (synonymy; descr.); U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 6, 1876, 455, part (monogr.); Man. North Amer. Birds, 1887, 254, part; Sclater and Salvin, Nom. Av. Neotr., 1873, 123, part; Sharpe, Cat. Birds Brit. Mus., i, 1874, 31, part (Rio de Janeiro; Mexiana Island); Gurney, List Diurnal Birds of Prey, 1884, 12, part; Cat. Birds of Prey, 1894, 18, part; Ihering and Ihering, Aves Brazil, 1907, 82 (Amazonia; Pará; Rio Branco; São Paulo; Rio de Janeiro; Rio Grande do Sul; Bahia; Minas Geraes).—*Polyborus tharus a.* var. *tharus* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 51 (Brazil).—*Polyborus tharus* var. *tharus* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 177, part.—*Poliborus tharus* Ihering, Rev. Mus. Paulista, vi, 1899, 337 (Paraguay).—*Falco brasiliensis* Gmelin, Syst. Nat., i, pt. 1, 1788, 262 (Brazil; based on *Circus brasiliensis* Brisson); Latham, Index Orn., i, 1790, 21; Daudin, Traité d'Orn., ii, 1800, 149; Shaw, Gen. Zool., vii, pt. 1, 1809, 106; Maximilian, Beitr. Naturg. Bras., iii, 1830, 190 (Rio Parahyba; Cabo Frio; Lagoa Feia; St. Bento; Barro de Furado; Muribeca on Rio Itabapuana, prov. Bahia).—*Polyborus brasiliensis* Kaup, Isis, 1847, 349, part (monogr.) 373, 375, 381, part; Bonaparte, Consp. Gen. Av., i, 1850, 13, part; Schlegel, Mus. Pays-Bas, ii, No. 9, 1863, 2 part (monogr.).—*Falco cheriway* (not *Falco cheriway* Jacquin, 1784) Lichtenstein, Verz. Doubl., 1823, 60, part (Brazil).—*Polyborus vulgaris* Vieillot, Nouv. Dict. Hist. Nat., v, 1816, 257 (cites *Falco brasiliensis* Latham); Gal. Ois., i, 1825, 23, pl. 7; Spix, Av. Bras., i, 1824, 3, pl. 1a (Minas Gerais; Capitana Piauhy; St. Johannis, Marajo); d'Orbigny and Lafresnaye, Synop. Avium, 1839, 3, part (Brazil; Peru); Tschudi, *in* Wiegmann's Archiv für Naturg., x, 1844, 263 (Peru); Fauna Peruana, Aves, 1845, 77; Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 41.—*Polyborus caracara* Spix, Av. Bras., i, 1824, pl. 1 a (young).—*Polyborus plancus brasiliensis* Swann, Monogr. Birds Prey, 1, 1925, 69 (monogr.); Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 97 (habits; Paraguay; crit.); Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 102 (Matto Grosso, Brazil; crit.); Peters, Check-list Birds of World, i, 1931, 280.

POLYBORUS CHERIWAY AUDUBONII Cassin

AUDUBON'S CARACARA

Adult (sexes alike).—Forehead, crown, occiput, nape, scapulars, upper wing coverts, secondaries, and inner primaries, lower back, rump, abdomen (except posteriomedian portion), sides, flanks, and thighs very dark fuscous, darkest on the top of the head; interscapulars cartridge buff to pale buffy white, usually whiter toward the tip, crossed by broad transverse spots (often actually bars) of deep fus-

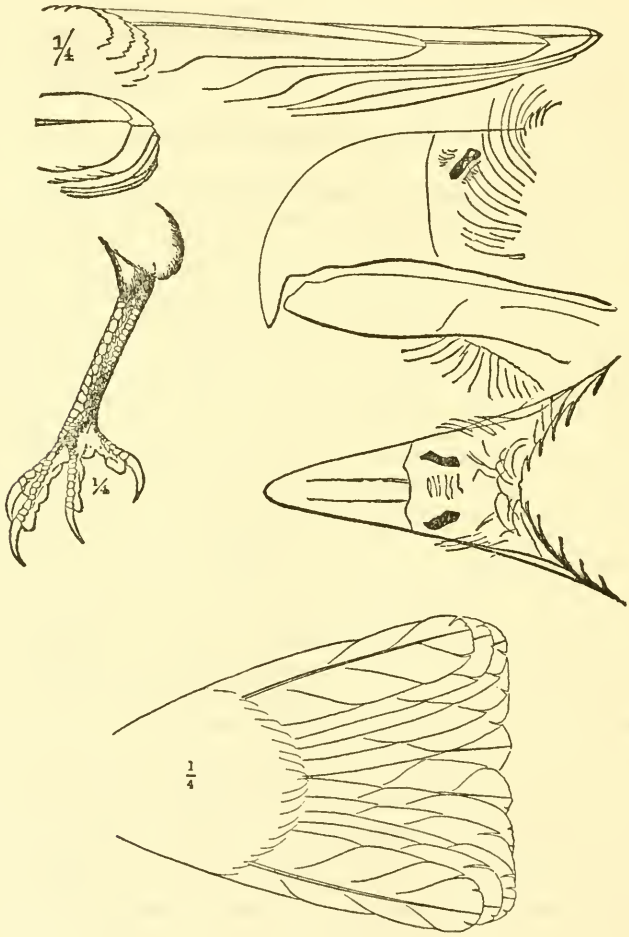

FIGURE 44.—*Polyborus cheriway.*

cous-black, the pale interspaces narrow, and the tips whitish, the adjacent feathers of the upper back so extensively dark fuscous-black as to be merely crossed by five or more very narrow whitish bars; outermost five or six primaries basally whitish to just beyond the

coverts, the outer webs mottled with mouse gray, the inner webs crossed by four to seven incomplete bands of the same, these primaries terminally fuscous-black; third from the outside the longest; the fourth slightly shorter; the second shorter than the fifth; the outermost one 80 mm. or more shorter than the longest; upper tail coverts white either unmarked or crossed by 4 to 7 incomplete grayish drab bars; basal two-thirds of tail white crossed by 11 to 14 narrow transverse bands of pale chaetura drab, the more distal bands usually wider and darker than the more proximal ones, broad terminal area of tail (50 mm. or more in width) very dark fuscous-black to dark fuscous; the outer web of the outermost pair almost entirely fuscous-black; lores, orbital area, and cheeks bare; auriculars, chin, throat, and sides of neck whitish, washed with ivory yellow; breast and a lateral-dorsal extension connecting with the interscapulars cartridge buff to pinkish buff, the feathers crossed by four to six broad transverse spots of deep fuscous-black, the spots larger on the midventral part than on the lateral parts of the breast; posteromedian part of abdomen and under tail coverts cartridge buff to dirty pinkish buff; cere and bare facial skin dull carmine-red; iris raw sienna; bill livid whitish; bluish at base; tarsi and toes chrome yellow to very pale yellow; claws black.

Immature (sexes alike).—Forehead, crown, occiput, nape, scapulars, upper wing coverts, secondaries, inner primaries and broad tips of outer primaries, lower back, rump, abdomen (except the posteromedian portion), sides, flanks, and thighs sepia to sayal brown, the feathers of the top of the head with indistinct blackish median streaks, the median upper wing coverts and the feathers of the rump with narrow whitish tips and the former indistinctly crossed by transverse spots of fuscous, the lesser upper wing coverts generally darker, more sepia, less sayal brown, than the other upper wing coverts; the feathers of the abdomen and flanks tipped (in fresh plumage) with cartridge buff, the feathers of the anterior part of the abdomen often largely cartridge buff laterally, but not terminally edged with sayal brown and with a narrow dark sepia to fuscous stripe on each side of the whitish or buffy whitish shaft; posteromedian part of abdomen and under tail coverts as in adults; under wing coverts dark sepia to fuscous; upper tail coverts and rectrices as in adult but the broad terminal tail band sayal brown to sepia instead of dark fuscous; interscapulars sayal brown (the more anterior ones much washed with cartridge buff) tipped with buffy white and with very variable cartridge buff to whitish median areas (in some cases areas broad with fuscous-black shafts; in others completely crossed by several broad wedge-shaped dark fuscous spots); outer primaries as in adults, but the dark fuscous replaced by sepia; sides of face, chin, throat, and sides of neck as in adults but less whitish, more

ivory yellow to very pale pinkish buff; breast pale pinkish buff the feathers edged laterally with dull sayal brown and with fuscous-black shaft streaks and some with wedge-shaped transverse spots of the same.

Juvenal (sexes alike).—Similar to the immature plumage, but the feathers of the breast without any dark shafts or transverse spots; the interscapulars with no transverse dark spots; iris dark madder brown; cere and orbital skin fleshy white (probably rosy in life); bill whitish tinged with pale bluish; tarsi with the larger scutes bluish white, the rest and toes pale yellow white; claws blackish.

Natal down.—Forehead, crown, occiput army brown; scapulars, rump, and flanks wood brown; rest of body pinkish buff; lores and orbits bare.

Adult male.—Wings 370–418 (393.5); tail 228.6–254 (240.5); culmen from cere 30–36.5 (33.5); tarsus 81–90.5 (84.4); middle toe without claw 48–51 (49.5 mm.).[19]

Adult female.—Wings 373.5–408 (391); tail 223.5–254 (242); culmen from cere 30–36 (33); tarsus 89–94 (92); middle toe without claw 50.5–53.5 (52 mm.).[20]

Range.—Resident in the prairie region of central Florida from northern Brevard County (occasionally to Enterprise and St. Augustine) south to Fort Pierce, Okeechobee Lake, Rocky Lake, Okaloacoochee Slough, Everglades, Caloosahatchie River, Fort Thompson, Fort Myers, Kissimmee Prairies, Basinger, Orlando, St. Johns River, Lake Istokpoga, Lake Flirt, and Manatee River, and from the coastal area of Louisiana west of the Mississippi River west through southern Texas (Refugio County, Kerrville, Flour Bluff, Bird Island, San Antonio, Medina River, lower Rio Grande, Brownsville, Rio Guadalupe, Laredo, Corpus Christi, Lomita Ranch, Austin, Houston), southern New Mexico (Fort Thorn, Mesquite); and southern Arizona (Fort Yuma, Gila River, Tucson, Oracle, Santa Clara Valley); south through Mexico (Tamaulipas, Matamoros; Guaymas; Sinaloa, Presidio de Mazatlán, Mazatlán, Hacienda Angostura in San Luis Potosí; Jalisco, Guanajuato, Guadalajara, Santana near Zapotlán, Colima, Mirador, Zacatecas, Tampico, Monterrey, Valley of Mexico; Veracruz, Jalapa, Orizaba, Llano de San Baltazar, Parada, Mérida, Izamal, Tehuantepec, Oaxaca, Sinaloa, San Blas, Labradas, Blanca de Tierra, Sonora, and Baja California—Cape San Lucas, San José del Cabo, Santa Margarita Island, Magdalena Bay, La Paz, San Jose del Rancho, Santo Domingo, San Ignacio, 20 miles south of Calmallí, upper Hardy River, 10 miles west of Pilot Knob, and one mile south of United States boundary); Guatemala (San Jerónimo, Gualán, El Rancho,

[19] Ten specimens from Florida, Texas, Arizona, and Mexico.

[20] Ten specimens from Florida, Texas, Arizona, and Mexico.

Finca El Cipre, Dueñas, Escuintla, San José de Guatemala); Honduras (San Pedro, coastal area); Nicaragua (Chinandega, San Juan del Sur, Sucsuya); Costa Rica (San José, Alajuela, Volcán de Miravalles, Guanacaste, Puntaarenas), and Panama to the Canal Zone (Veragua, Pacheca Island, Bay of Panama); also in Cuba (Palo Alto, San Pablo) and the Isle of Pines (Nueva Gerona).

Occasional in California (Monterey), southern New Mexico (Fort Thorn, Mesquite), Oklahoma (Mulberry Creek), southern Louisiana, and South Carolina, and on the coast of Washington. Accidental in Ontario (Port Arthur) and New York (Long Island).

Type locality.—Florida.

Polyborus vulgaris (not of Spix, 1824) Audubon, Orn. Biogr., ii, 1834, 350, pl. 161.—d'Orbigny, *in* La Sagra's Hist. Nat. Cuba, Ois., 1839, Spanish ed., p. 26, French ed., p. 9.—Vigors, Zool. Voy. *Blossom*, 1839, 15, part.—Bryant, Proc. Boston Soc. Nat. Hist., vii, 1859, 6 (Indian River, Fla.; meas.).—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).

Polyborus brasiliensis (not *Falco brasiliensis* Gmelin) Bonaparte, Proc. Zool. Soc. London, 1837, 108 (Mexico); Comp. and Geogr. List, 1838, 2.—Nuttall, Man. Orn. United States and Canada, Land Birds, ed. 2, 1840, 52.—Denny, Proc. Zool. Soc. London, 1847, 38 (Cuba; Jamaica).—Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 2, part (monogr.); No. 36, livr. 10, 1873, 137, part.—Allen, Bull. Mus. Comp. Zool., ii, No. 3, 1871, 337 (e. Florida).

Polyborus braziliensis Audubon, Orn. Biogr., v, 1839, 351; Synopsis, 1839, 4 (Texas; Florida); Birds Amer., 8vo ed., i, 1840, 21, pl. 4.—Woodhouse, Rep. Sitgreaves Expl. Zuñi and Colorado Rivers, 1853, 58.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 453 (s. North America).

?*Morphnus capistratus* Lesson, Écho du Monde Savant, ser. 2, vii, No. 1, 1843, 14 (Pacific coast of Central America).

Polyborus tharus (not *Falco tharus* Molina) Cassin, Illustr. Birds California, Texas, etc., 1854, 113 (Texas); Proc. Acad. Nat. Sci. Philadelphia, 1855, 284 (Texas); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 45.—Brewer, North Amer. Ool., i, 1857, 58, pl. 2, figs. 18, 19.—Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 4 (Texas; Monterrey, Nuevo Leon); Cat. North Amer. Birds, 1859, No. 45.—Heermann, Rep. Pacific R. R. Surv., x, pt. 4, No. 2, 1859, 30 (Fort Yuma and Gila River, Ariz.; San Antonio and Medina River, Tex.; habits).—Henry, Proc. Acad. Nat. Sci. Philadelphia, 1859, 105 (New Mexico).—Sclater, Proc. Zool. Soc. London, 1859, 368 (Jalapa, Veracruz).—Sclater and Salvin, Ibis, 1859, 214 (Guatemala; habits); Proc. Zool. Soc. London, 1869, 252 (Veraguas, Panama); 1870, 838 (coast Honduras).—Taylor, Ibis, 1860, 223 (Honduras; habits).—Gundlach, Journ. für Orn., 1861, 322 (Cuba); Repert. Físico Nat. Cuba, i, 1865–'66, 221.—Owen, Ibis, 1861, 67 (San Gerónimo, Guatemala; descr. nest and eggs).—Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).—Gurney, Descr. Cat. Rapt. Birds Norfolk and Norwich Mus., pt. 1, 1864, 17 (Orizaba, Veracruz; habits).—Dresser, Ibis, 1865, 329 (mouth of Río Grande to Río Guadalupe; fresh colors of unfeathered parts).—Gray, Hand-list, i, 1869, 6, No. 35, part.—Boucard, Liste Ois. récol. Guat., 1878, 21.

Polyborus cheriway CABANIS, Journ. für Orn., 1854, lxxix (Cuba)—SHARPE, Cat. Birds Brit. Mus., i, 1874, 33, part (in syn.)—RIDGWAY, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 6, 1876, 457, part (monogr.); Proc. U. S. Nat. Mus. iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 423; Man. North Amer. Birds, 1887, 254 (except part of range).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 153 (Fort Brown, Tex.; habits; descr. nest and eggs).—NEHRLING, Bull. Nuttall Orn. Club, vii, 1882, 173 (Houston, etc., Tex.; habits).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 543 (Cape San Lucas region), 547 (San José del Cabo).—BOUCARD, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—BREWSTER, Bull. Nuttall Orn. Club, viii, 1883, 29 (Tucson, Ariz.; May); Bull. Mus. Comp. Zool., xli, 1902, 91 (Cape San Lucas region, Lower California; res.; Santo Domingo, on San Sebastián Viscaino Bay, n. of lat. 28°, 2 specs.; habits).—GURNEY, List Diurn. Birds Prey, 1884, ii, part; Cat. Birds Prey, 1894, 18, part.—CORY, List Birds West Indies, 1885, and rev. ed., 1886, 23 (Cuba); Auk, iv, 1887, 50 (West Indian references and localities; descr.); Birds West Indies, 1889, 208; Cat. West Indian Birds, 1892, 90 (Cuba; Isle of Pines).—AMERICAN ORNITHOLOGISTS' UNION, Check-list, 1886, and ed. 2, 1895, No. 362 (except as to Ecuador and Guiana); ed. 3, 1910, p. 167.—SCOTT, Auk, iii, 1886, 423 (Tucson, Ariz., summer; resident?); ix, 1892, 212 (Caloosahatchie River, Fla., breeding), 215 (Fort Thompson, Fort Myers, etc., Caloosahatchie River; habits; descr. nest and downy young).—LLOYD, Auk, iv, 1887, 189 (Menard and Concho Counties, Tex.; breeding).—SENNETT, Auk, iv, 1887, 27 (descr. downy young).—ZELEDÓN, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Alajuela, Costa Rica).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 661 (Corpus Christi and near San Antonio, Tex.; habits).—CHERRIE, Auk, vii, 1890, 333 (San José, Costa Rica, breeding).—ATTWATER, Auk, ix, 1892, 234 (San Antonio, Tex.; common res.).—CHAPMAN, Bull. Amer. Mus. Nat. Hist. iv, 1892, 296 (San Pablo, s. Cuba).—ROADS, Proc. Acad. Nat. Sci. Philadelphia, 1892, 105 (Corpus Christi, Tex.; abundant), 115 (Tucson and Oracle, Ariz.).—BERISTAIN and LAURENCIO, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 222 (Mexico).—GUNDLACH, Orn. Cubana, 1895, 11.—UNDERWOOD, Ibis, 1896, 446 (Volcán de Miravalles, Costa Rica; food).—SHARPE, Hand-list, i, 1899, 243, part (s. United States; Lower California; Central America; Cuba).—BEYER, Proc. Louisiana Soc. Nat. for 1897–99 (1900), 100 (common on coast of Louisiana w. of Mississippi River).—CARROLL, Auk, xvii, 1900, 343 (Refugio County, Tex.; common res.).—NASH, Check List Birds Ontario, 1900, 31 (Ontario; accid.; n. shore Lake Superior, July 18, 1892; spec.); Check List Vert. Ontario: Birds, 1905, 43 (Ontario; 1 rec. 1892).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1901, 125 (except as to South American range).—BAILEY, Handb. Birds Western United States, 1902, 171 (w. United States; descr.).—BANGS and ZAPPEY, Amer. Nat., xxxix, 1905, 191 (Isle of Pines; habits).—THAYER and BANGS, Bull. Mus. Comp. Zool., xlvi, 1905, 144 (Pacheco Island, Bay of Panama).—DEARBORN, Publ. Field Mus. Nat. Hist. No. 125, 1907, 84 (El Rancho and Gualan, Guatemala).—BEYER, ALLISON, and KOPMAN, Auk, xxv, 1908, 442 (Louisiana coast w. of Mississippi River).—CARRIKER, Ann. Carnegie Mus., vi, 1910, 450 (Punta Arenas, Guanacaste, etc., Costa Rica).—LACEY, Auk, xxviii, 1911, 208 (Kerrville and Guadalupe Valley, Tex.).—GILMAN, Condor, xvi, 1914, 261, in text (Gila River, Ariz.; 3 specimens).—SWARTH, Pacific Coast Avif., No. 10, 1914, 28 (Arizona: Tucson; Yuma; Salt River; not common).—GRINNELL, Pacific Coast Avif., No. 11, 1915, 182 (California; hypothetical); Condor, xxiii, 1921, 145 (Monterey), 195 (added to California list).—TODD, Ann. Carnegie Mus., x, 1916, 198 (Nueva Gerona,

Isle of Pines; habits).—Heath, Condor, xxi, 1919, 125, in text (near Monterey, Calif.; winter of 1916).—Swann, Synopt. List Accip., pt. 1, 1919, 8, part (s. United States).—Cahn, Condor, xxiv, 1922, 177 (between Corpus Christi and Flour Bluff, Bird Island, Tex.).—Townsend, Bull. Amer. Mus. Nat. Hist. xlviii, 1923, 14 (Santa Margarita Island, Lower California, March 19; Magdalena Bay, March 21).—Bent, Wils. Bull., xxxvi, 1924, 13 (status in se. Texas).—Anthony, Proc. California Acad. Sci., ser. 4, xiv, 1925, 295 (Margarita Island, Mexico).—Bailey, Birds Florida, 1925, 73, pl. 35 (fig.; descr.; Florida).—Friedmann, Auk, xlii, 1925, 545 (Brownsville, Tex.).—Griscom and Crosby, Auk, xlii, 1925, 536 (status in Brownsville, Tex., area).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 69, 99 (Rancho La Brea; bones); Condor, xxxvii, 1935, 77, in text (California; McKittrick Pleistocene; bones).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 108 (descr.; distr.).—Bent and Copeland, Auk, xliv, 1927, 381 (Kissimmee Prairie, near Basinger, Fla.).—Christy, Auk, xlv, 1928, 288 (Kissimmee Prairie, Fla.).—Palmer, Condor, xxx, 1928, 266.—Swarth, Proc. California Acad. Sci., ser. 4, xviii, 1929, 294 (Tucson; Santa Cruz Valley, s. Arizona; food; plum.).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho la Brea).—Nicholson, Auk, xlvii, 1930, 267 (nesting 30 miles e. of Orlando, Fla.).—? Howard and Miller, Condor, xxxv, 1933, 16 (bones from Organ Mountains, N. Mex.).—Taverner, Birds Canada, 1934, 142 (Canada; genl.; col. fig.).—Bond, Birds West Indies, 1936, 61, in footnote (Cuba); 74 (West Indies; distr.; local names).—del Campo, Anal. Inst. Biol., viii, No. 3, 1937, 336 (Morelos; Cuernavaca; spec.).—Howard, Condor, xlii, 1940, 42, in text (bone; descr.).—Engels, Auk, lviii, 1941, 63, 64, in text (skeletal ratios).—Monson, Condor, xliv, 1942, 222 (se. Arizona).—Sutton and Pettingill, Auk, lix, 1942, 10 (Gómez Farias region, sw. Tamaulipas, Mexico).—Sutton, Auk, lxii, 1945, 606 (Florida).—Eisenman, Auk, lxiv, 1947, 470 (New York; were seen Sept. 28, 1946, in Alley Pond Park on Long Island, on outskirts of New York City).

Polyborus cheriway cheriway Swann, Synop. Accip., pt. 1, 1921, 12, part (s. United States).—Stone, Proc. Acad. Nat. Sci. Phila., lxxxiv, 1932, 301 (Honduras; San Juancito, Cantarranas, San Pedro).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 149 (Finca El Cipre, Guatemala; spec. intermediate between *cheriway* and *audubonii*).

Polyborus audubonii Cassin, Proc. Acad. Nat. Sci. Philadelphia, xvii, 1865, 2 (Florida; coll. Acad. Nat. Sci.).—Coues, Proc. Acad. Nat. Sci. Philadelphia, xviii, 1866, 49 (Fort Whipple, Ariz.).—Butcher, Proc. Acad. Nat. Sci. Philadelphia, xx, 1868, 149 (Laredo, Tex.).—Cooper, Amer. Nat., iii, 1869, 480; Orn. California, Land Birds, 1870, 492 (Fort Yuma, Ariz., etc.).

Polyborus auduboni Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 132 (San José, Costa Rica); ix, 1869, 207 (Mérida, Yucatán).—Frantzius, Journ. für Orn., 1869, 367 (Costa Rica).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 145, part.—Gundlach, Journ. für Orn., 1871, 293 (Cuba), 357 (Cuba; habits); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 97 (Cuba); Contr. Orn. Cubana, 1876, 33.—Sclater and Salvin, Nom. Av. Neotr., 1873, 123, part.—Coues, Key North Amer. Birds, ed. 2, 1884, 539.

Polyborus tharus var. *audubonii* Coues, Key North Amer. Birds, 1872, 220; Check List North Amer. Birds, 1873, No. 363.—Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 303, part (Mazatlán, Sinaloa; Colima; habits; descr. nest and eggs).

Polyborus tharus b. var. *auduboni* Ridgway, Proc. Boston Soc. Nat. Hist. xvi, 1873, 51 (Cape San Lucas).

Polyborus tharus auduboni Coues, Birds Northwest, 1874, 370, 371, footnote.—Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 178.—Lawrence, U. S. Nat. Mus. Bull. 4, 1875, 43 (Tehauantepec, Oaxaca).—McChesney and Coues, U. S. Geol. and Geogr. Surv. Terr. Bull. 3, 1877, 686 (Mulberry Creek, Indian Terr.).—Coues and Sennett, U. S. Geol. and Geogr. Surv. Terr. Bull. 4, No. 1, 1878, 44 (Brownsville and lower Rio Grande Valley generally).—Sennett, U. S. Geol. and Geogr. Surv. Terr. Bull. 5, 1879, 421 (Corpus Christi, Tex., Mar. 21; Lomita Ranch, Apr., May; descr. young and nest and eggs).

Polyborus cheriway auduboni Bangs and Noble, Auk, xxxv, 1918, 443 (crit.).—Swann, Synop. Accip., pt. 3, 1922, Err. et Add. (s. United States; Cuba; Mexico; Central America); Monogr. Birds Prey, i, 1925, 71 (monogr.).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 44 (Cuba; habits).—Dawson, Birds California (stud. ed.), iii, 1923, 1643 (genl.; California).—De Laubenfels, Wils. Bull., xxxvi, 1924, 169 (Brownsville, Tex.).—Simmons, Birds Austin Region, 1925, 109 (Austin, Tex.; habits; nests and eggs; descr.).—McLellan, Proc. California Acad. Sci., ser. 4, xvi, 1927, 19 (Labrados; Blanca de Tierra Point, San Blas, Mexico; plum.).—Bailey Birds New Mexico, 1928, 186 (genl.; New Mexico).—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 113 (distr.; Lower California).—Bancroft, Condor, xxxii, 1930, 27 (central Lower California).—American Ornithologists' Union, Check-list, ed. 4, 1931, 73.—(Arthur), Birds Louisiana, 1931, 207 (descr.; stat.; Louisiana).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 243 (Sonora, Mexico).—Howell, Florida Bird Life, 1932, 186 (genl.; Florida).—Rutten, Ardea, xxiii, 1934, 116 (Cuba; 2 records from Camagüay and Isle of Pines).—Taverner, Birds Canada, 1934, 142, in text (Canada; genl.; col. fig.).—Rowley, Condor, xxxvii, 1935, 164, in text (Mexico: Lower California; common; 5 nest records).—Balmer, Murrelet, xvii, 1936, 54, in text (Westport, Wash.; spec.).—Bond, Birds West Indies, 1936, 74, in text (Cuba; Isle of Pines; descr.; crit.), 414.—Harper, Auk, liii, 1936, 386, in text (distr.).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 24 (Brewster County, Tex.; not seen by authors).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 127 (life hist.).—Abbott, Auk, lviii, 1941, 417, in text (Guaymas, Sonora; Mexico; record).—Atwood, Auk, lx, 1943, 454, in text (Black Bayou, La., nesting).—Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 32 (Cuba; abundant).—Hill, Auk, lxi, 1944, 230 (meas.; sex dimorphism).—Hoyt and Hoyt, Auk, lxi, 1944, 145 (Charleston, S. C.; first record for State).—McAtee, Wils. Bull., lvi, 1944, 157 (Gulf State migr.; res. e. of Texas).

Polyborus cheriway audubonii Peters, Check-list Birds of World, i, 1931, 281.—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 211 (ne. Nicaragua; spec.; colors of soft parts).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Panama, w. half in arid tropics).—Monson, Condor, xxxviii, 1936, 176, in text (Papago Indian Reservation, Ariz.; 2 records).—Compton, Univ. California Publ. Zool., xlii, No. 3, 1938, 176 (pterylosis).—Oberholser, Bird Life Louisiana, 1938, 182 (Louisiana; casual vis. to coast; definite records from Cameron Parish, Calcasieu Pass, Kenner, and Oneida).—Sassi, Temminckia, iii, 1938, 302 (Bebedero, Costa Rica; 4 specs.).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 27 (ne. Mexico: Tamaulipas; Victoria and Gómez Farias); Wils. Bull., lii, 1940, 223, in text (Mexico; Tamazunchale; nest.); Condor, xlii, 1940, 259, in text (San Luis Potosí, Mexico; fairly common).—Bond, Check List Birds West Indies, 1940, 25 (Cuba, common; Isle of Pines, not common); ed. 2, 1945, 25; Proc.

Acad. Nat. Sci. Philadelphia, xciv, 1942, 91 (Cuba; common names).—Davis, Wils. Bull., liii, 1941, 38 (Cienfuegos, Cuba).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, 1942, 526 (Michoacán; Apatzingán; spec.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 561 (California; hypothetical).

Caracara plancus audubonii Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 286.

Polyborus cheriway ammophilus van Rossem, Ann. Mag. Nat. Hist., ser. 11, iv, 1939, 441 (Tesia, Sonora; s. Arizona to Lower California); Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 62 (Sonora; common res.).

Caracara plancus ammophilus Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 285.

POLYBORUS CHERIWAY CHERIWAY (Jacquin)

Venezuelan Caracara

Adult (sexes alike).—Similar to that of *Polyborus cheriway audubonii*, but the dark parts darker, the fuscous to dark fuscous of the latter form replaced by very dark fuscous-black to black.

Immature.—Indistinguishable from that of *P. c. audubonii.*

Juvenal.—Indistinguishable from that of *P. c. audubonii.*

Natal down.—None seen; probably like that of *P. c. audubonii.*

Adult male.—Wing 381–400 (391.5); tail 200–226 (219); culmen from cere 30–33 (32); tarsus 90–93 (91.5); middle toe without claw 50–53 (51.5 mm.).[21]

Adult female.—Wing 368–395 (382); tail 200–221 (215.5); culmen from cere 30–34 (32); tarsus 88–92 (90.5); middle toe without claw 50.5–53 (52 mm.).[22]

Range.—Resident from the Pearl Islands, Bay of Panama, and Darién, Panama, south through Colombia (Bogotá, Bonda, Bucaramanga, Fundación, La Manuelita, Puerto Caimán, Río Frío, Río Negro, Valencia); Venezuela (Valencia, Guárita, Caicara, Altagracia, Orinoco Valley, Guárico, Apure, Marurie, Angostura), and the islands of Trinidad, Aruba, Curaçao, Bonaire, and Margarita Island east to British Guiana (Quitaro River, Georgetown, upper Takutu Mountains, Abary River) and Dutch Guiana; south to northern Brazil (Santarém, Piauhy; lower Amazon River); Ecuador (Puná Island, Babahoyo, Cayambe, El Troje, Ibarra, Vinces, Puntilla de Santa Elena, Corazón, Carapungo (8,500 feet!), Daule, Zaruma, Alamor, Quito Valley); and Peru (Perico).

Type locality.—Aruba and coast of Venezuela.

Falco cheriway Jacquin, Beitr., 1784, 17, pl. 4 (Aruba and coast of Venezuela).—Gmelin, Syst. Nat., i, pt. 1, 1788, 254.—Daudin, Traité d'Orn., ii, 1800, 42.—Vieillot, Nouv. Dict. Hist. Nat., v, 1816, 259.—Lesson, Traité d'Orn., 1831, 34 (crit.).

[21] Five specimens from Venezuela, Colombia, and Ecuador.

[22] Six specimens from Venezuela, Colombia, Ecuador, and Brazil.

Vultur cheriway Latham, Index Orn., i, 1790, 8.—Shaw, Gen. Zool., vii, pt. 1, 1809, 43 (Aruba).

Polyborus cheriway Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 741.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 33 (British Guiana; Puná Island, w. Ecuador; Valencia, Venezuela; excl. synonymy, part); Hand-list, i, 1899, 243, part (Colombia; Ecuador; Guiana; Trinidad).—Gurney, Ibis, 1875, 95, in text (Brazil); List Diurn. Birds Prey, 1884, 11, 12, part; Cat. Birds Prey, 1894, 18 (part).—Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 6, 1876, 457, part (monogr.).—Sclater and Salvin, Proc. Zool. Soc. London, 1879, 542 (Río Negro, Colombia; descr. nest and eggs).—Salvin and Godman, Ibis, 1880, 117 (Valencia, in Sierra Nevada de Santa Marta, Colombia; habits); Biol. Centr.-Amer., Aves, iii, 1901, 125, part (Ecuador to Guiana).—Berlepsch, Proc. Zool. Soc. London, 1885, 119 (Puná Island and Babahoyo, w. Ecuador); Journ. für Orn., 1892, 103 (Curaçao).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 362, part (Ecuador; Guiana); ed. 3, 1910, 167, part (Ecuador; Guiana).—Salvin, Ibis, 1886, 78 (British Guiana).—Riker and Chapman, Auk, viii, 1891, 161 (Santarém, Brazil; crit.).—Peters, Journ. für Orn., 1892, 110 (Curaçao).—Hartert, Ibis, 1893, 321 (Curaçao), 303 (Aruba; crit.; habits), 332 (Bonaire); Nov. Zool., v, 1898, 501 (Cayambe, nw. Ecuador, 9,500 ft.); ix, 1902, 303 (Aruba; Curaçao; Bonaire).—Robinson, Proc. U. S. Nat. Mus., xviii, 1896, 661 (Margarita Island), 682 (Guarita, Venezuela).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 27 (El Troje and Ibarra, c. Ecuador; Vinces and Puntilla de Santa Elena, w. Ecuador).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 111 (Caicara and Altagracia, Orinoco Valley, Venezuela; fresh colors of unfeathered parts).—Goodfellow, Ibis, 1902, 223 (Corazon, Ecuador, 12,000 ft.).—Ihering and Ihering, Av. Brazil, 1907, 83 (Amazonia; Santarém; Piauhy).—Penard and Penard, Vog. Guayana, i, 1908, 369 Dutch Guiana).—Cory, Publ. Field Mus. Nat. Hist., No. 137, 1909, 198 (Aruba), 205 (Curacao), 210 (Bonaire), 242 (Margarita Island).—Brabourne and Chubb, Birds South Amer., i, 1912, 62 (Ecuador; Colombia; Guiana; Brazil).—Reichenow, Die Vögel, i, 1913, 273.—Cherrie, Bull. Brooklyn Inst. Sci. ii, 1916, 340 (Orinoco Valley, Venezuela; habits; fresh colors of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 213 (habits).—Chapman, Bull. Amer. Mus. Nat. Hist., xxxvi, 1917, 238 (La Manuelita and Bogotá, Colombia).—Swann, Synopt. List. Accip., pt. 1, 1919, 8, part (n. South America).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 29 (Carapungo, ne. of Quito, Ecuador, 8,500 feet).—Delacour, Ibis, 1923, 144 (Guárico and Apure, Venezuela).—Young, Ibis, 1929, 4 (coast British Guiana; habits; food; color of soft parts).—Rutten, Ardea, xx, 1931, 126 (status, Aruba and Curaçao, West Indies).

Polyborus cheriway cheriway Bangs and Noble, Auk, xxxv, 1918, 443 (Perico, Peru; crit.).—Swann, Synop. Accip., pt. 1, 1921, 12, part (n. South America); Monogr. Birds Prey, i, 1925, 70 (monogr.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 163 (Fundación, Bonda, and Puerto Caimán, Santa Marta, Colombia).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 219 (distr. Ecuador—Daule, Puná Island, Zaruma, Alamor).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 369 (Río Frío, Magdalena, Colombia; habits).—Peters, Check-list Birds of World, i, 1931, 281.—Belcher and Smooker, Ibis, 1934, 593, in text (Trinidad; 2 records).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Pearl Islands and Darién).—Pinto, Rev. Mus. Paulista, xxii, 1938, 89 (Brazil; distr.).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 187 (Venezuela; Ocumare de la Costa, Maracay,

and El Sombrero).—Dugand, Rev. Acad. Colomb., iii, 1940, 221 (Magdalena-Caribbean area of Colombia).—Miller, Auk, lxiv, 1947, 355 (Colombia, Upper Magdalena Valley; not common).

Polyborus vulgaris (not of Vieillot) Tschudi, Unters. Faun. Peru, Orn., 1846, 77 (coast of Peru).

Polyborus caracara Schomburgk, Reis. Brit. Guiana, i, 1847, 386, 394 (near Pirara, Brit. Guiana).

Polyborus brasiliensis (not *Falco brasiliensis* Gmelin).—Gray, List Spec. Brit. Mus., pt. 1, ed. 2, 1848, 31, part (Brit. Guiana; Puná Island, w. Ecuador).—Pelzeln, Verh. zool.-bot. Ges. Wien, xii, 1862, 178, part (Rio Branco, Brazil).—Schlegel, Mus. Pays-Bas, ii, No. 9, livr. 2, 1863, 2, part (monogr.); No. 36, livr. 10, 1873, 137, part.—Taylor, Ibis, 1864, 79 (Orinoco, Venezuela; habits).

Polyborus tharus (not *Falco tharus* Molina) Taylor, Ibis, 1860, 223 (common; Honduras).—Sclater, Proc. Zool. Soc. London, 1860, 288 (Babahoyo, w. Ecuador).—Gray, Hand-list, i, 1869, 6, No. 35, part.—Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252 (Maruria, Venezuela).—Allen, Bull. Essex Inst., viii, 1876, 82 (Rhome, lower Amazon).

Polyborus audubonii Orton, Amer. Nat., v, 1871, 624 (Quito Valley, Ecuador).—Berlepsch, Journ. für Orn., 1884, 317 (Bucaramanga, Colombia; food); Ibis, 1884, 437 (Angostura, Venezuela).

Polyborus tharus b. var. *audubonii* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 51, part (Brazil).

Caracara plancus audubonii Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 286.

POLYBORUS CHERIWAY PALLIDUS Nelson

TRES MARÍAS CARACARA

Adult (sexes alike).—Similar to that of *Polyborus cheriway audubonii* but paler, snuff brown to sepia instead of dark fuscous-black, and smaller in size.

Immature.—None seen.

Juvenal (females only seen).—Similar to that of *Polyborus cheriway audubonii* but much paler, the sepia to sayal brown of the latter replaced by pale fulvous to tawny-olive; the chin and throat very pale cartridge buff.

Natal down.—Unknown.

Adult male.—Wing 355–366 (361); tail 185–194 (191.8); culmen from cere 30.5–32 (31.3); tarsus 83–88 (85); middle toe without claw 47–50 (48.3 mm.) (4 specimens including the type).

Adult female.—Wing 373–375; tail 203–205; culmen from cere 32.5; tarsus 86–88; middle toe without claw 51–53 mm. (2 specimens).

Range.—Confined to the Tres Marías Islands, Mexico.

Type locality.—María Madre Island.

Polyborus audubonii (not of Cassin) Grayson, Proc. Boston Soc. Nat. Hist., xiii, 1871, 9; xiv, 1872, 268 (Tres Marías Islands).

Polyborus tharus var. *audubonii* Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 303, part (Tres Marías Islands).

Polyborus cheriway pallidus Nelson, Proc. Biol. Soc. Washington, xii, 1898, 8 (original descr.; measurements; crit.); North Amer. Fauna, No. 14, 1899, 38

(Tres Marías; habits, etc.).—Bailey, Auk, xxiii, 1906, 387 (White Rock and Cleofa Islands, Tres Marías).—Swann, Synopt. List Accip., pt. 3, 1920, 8; Synop. Accip., pt. 1, 1921, 12; Monogr. Birds of Prey, i, 1925, 72 (monogr.).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 298 (María Madre); xvi, 1927, 19 (María Madre; plum.).—Peters, Check-list Birds of World, i, 1931, 281.

Polyborus pallidus Sharpe, Hand-list, i, 1899, 243.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 127.

Caracara plancus pallidus Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 287 (syn.; range).

POLYBORUS LUTOSUS Ridgway

Guadalupe Caracara

Adult (sexes alike).—Forehead, crown, occiput, lesser upper wing coverts, secondaries, primary coverts, alula, terminal portion of primaries, entire lining of the wing (including axillars), and terminal band on the tail (25-40 mm. wide) blackish brown, sometimes almost black; auriculars, cheeks, and throat dirty whitish or light isabella color; rest of the plumage marked with transverse bars of brownish black or dark brown and brownish white or light isabella color; the bars most regular on the lower surface (and often the upper tail coverts), where they extend uninterruptedly from the foreneck to the crissum, the bars of the two colors being about equal in width, the dark ones fainter on the crissum, narrower and more distinct on the foreneck; on the middle and greater wing coverts they are similar to those on the abdomen; on the interscapulars the dark ones are much wider than the light ones, and nearly black; on the scapulars dark brown prevails, the lighter bars being almost obliterated; the basal half or more of the outer five or six primaries are isabella white, transversely mottled, or raggedly barred with grayish and dusky, the shafts clear yellowish white; tail, except dusky terminal band, marked with ragged transverse bars of brownish gray and isabella white, of equal widths; the bars of the two colors separated by a narrower zigzag bar of dusky; orbital and loreal skin and cere chrome yellow (changing to salmon after death); iris light brown; bill pale bluish white; tarsi and toes chrome yellow; claws blackish.

Juvenal (sexes alike).—Remiges and rectrices the same as in the adult, but the terminal band of the tail narrower and less sharply defined; pileum and lesser wing coverts dark brown, the feathers with lighter brown edges (these sometimes worn off); back and scapulars dull grayish brown, the latter plain, the former usually slightly variegated with lighter borders and tips to the feathers; lower parts light grayish brown, with longitudinal dashes of dirty whitish; upper tail coverts dull grayish brown, tipped with dirty whitish and some-

times barred with the same, the feathers with darker shaft streaks; lower tail coverts very indistinctly marked in much the same manner; auriculars, cheeks, and throat plain dirty white, as in the adult; iris dark brown; bill light bluish; tarsi and toes nearly "Naples yellow"; lores "not [=near] chrome yellow" (Bryant).[23]

Natal down.—General color light isabella color, or brownish white, with an umber-brown patch over the scapula, connected with one over the radius and ulna; pileum uniform umber-brown.

Adult male.—Wing 381–402 (393.3); tail 260–279 (265.7); culmen from cere 32–33.5 (32.8); tarsus 84–92 (89.3); middle toe without claw 45-53 (50.7 mm.) (6 specimens).

Adult female.—Wing 394-418 (407.5); tail 260-286 (272.6); culmen from cere 32–33 (32.7); tarsus 83–92 (88.5); middle toe without claw 50–56 (53.5 mm.).[24]

Range.—Restricted to Guadalupe Island off the coast of Baja California; now extinct.

Type locality.—Guadalupe Island.

Polyborus lutosus Ridgway, Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, No. 6, 1876, 455, 459, 460 (Guadalupe Island, Lower California; coll. U. S. Nat. Mus.); No. 2, 1876, 192 (monogr.); Bull. Nuttall Orn. Club, ii, 1877, 60, 61; Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 424; Man. North Amer. Birds, 1887, 254.—Gurney, List Diurn. Birds Prey, 1884, 12; Cat. Birds Prey, 1894, 18.—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 363; ed. 3, 1910, 168; ed. 4, 1931, 73.—Bryant, Proc. California Acad. Sci., ser. 2, Bull. 6, ii, 1887, 281 (Guadalupe Island; habits; fresh colors of unfeathered parts; etc.).—Rothschild and Hartert, Nov. Zool., ix, 1892, 404 (crit.).—Sharpe, Hand-list, i, 1899, 243.—Thayer and Bangs, Condor, x, 1908, 106 (now extinct!).—Swann, Synopt. List Accip., pt. 1, 1919, 8; Synop. Accip., pt. 1, 1921, 13; Monogr. Birds Prey, i, 1925, 73 (monogr.).—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 113 (distr. in Lower California, records).—Phillips, Verh. 6th Internat. Orn. Kongr., 1929, 506 (extinct; formerly on Guadalupe Island).—Peters, Check-list Birds of World, i, 1931, 281.—Abbott, Condor, xxxv, 1933, 10 (hist.; list specimens).—Wetmore, Condor, xxxv, 1933, 206, in text (California: Guadalupe Island; 1 skeleton).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 136 (life hist.).

Caracara lutosus Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 287 (syn.; range).

[23] In the adult plumage all the contour feathers have distinctly black shafts, especially on the lower surface and upper tail coverts; on the tibiae and anal region the dark bars are smaller and more faint than elsewhere, and incline to a sagittate form; the feathers of the lining of the wing are sometimes narrowly tipped with light isabella color, or tawny brown, and the transverse bars are faintest and most confused on the upper portion of the rump. In both adult and immature stages there is considerable variation, but all within the limits of the above diagnosis (Ridgway).

[24] Ten specimens. The measurements given are partly from original measurements and partly from literature.

Subfamily FALCONINAE: True Falcons

>Falconinae SWAINSON, Classif. Birds, ii, 1837, 212 (includes *Harpagus*, *Baza*, and *Aviceda*).—BONAPARTE, Consp. Gen. Av., i, 1850, 22 (includes *Harpagus*); Rev. Mag. Zool., vi, 1854, 535 (includes *Harpagus*).—KAUP, *in* Jardine's Contr. Orn., 1850, 51 (includes *Harpagus*).—GRAY, Handlist, i, 1869, v, 18 (includes *Harpagus*).—SHARPE, Cat. Birds Brit. Mus., i, 1874, xii, 350 (includes *Harpagus*, *Ictinia*, *Baza*, and *Aviceda*).—SUNDEVALL, Öfv. Svensk. Vet.-Akad. Förh., 1874, 30 (includes *Harpagus*).—BARROWS, Stand. Nat. Hist., iv, 1884, 273, 308, in text (includes *Harpagus*).—GURNEY, List Diurn. Birds Prey, 1884, xv, 91 (includes *Harpagus*).—PYCRAFT, Proc. Zool. Soc. London, 1902, 315 (includes *Herpetotheres*, *Micrastur*, *Microhierax*, *Poliohierax*).

=Falconinae CASSIN, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 7.—CARUS, Handb. Zool., i, 1868–75, 310.—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 139; Orn. Illinois, i, 1889, 426, 427.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 121.—COUES, Key North Amer. Birds, ed. 2, 1884, 520, 521.—SALVIN and GODMAN, Biol Centr.-Amer., Aves, iii, 1901, 113.—OBERHOLSER, Outl. Classif. North Amer. Birds, 1905, 2.—KNOWLTON, Birds of World, 1909, 212, in text.—AMERICAN ORNITHOLOGISTS' UNION, Check-list, ed. 3, 1910, 163.—SWANN, Synopt. Cat. Accip., pt. 4, 1920, 115.—PETERS, Check-list Birds of World, i, 1931, 284.—WETMORE, Smiths. Misc. Coll., xcix, No. 4, 1940, 40.

>Falconidae D'ORBIGNY, Voy. Amér. Mérid., iv, pt. 3, 1839, 113 (includes *Harpagus*).

=Falconidae LESSON, Écho du Monde Savant, 9e ann., vii, sér. 2, No. 25, Apr. 2, 1843, col. 588.

<Falcones normales SUNDEVALL, Öfv. Svensk. Vet.-Akad. Förh., No. 2, 1874, 30 (excludes *Hieracidea* and *Harpa*=*Nesierax*).

<Falcones longipedes SUNDEVALL, Öfv. Svensk. Vet.-Akad. Förh., No. 2, 1874, 31 (includes only *Hieracidea* and *Harpa*=*Nesierax*).

=Falcones RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 44; Bull. U. S. Geol. and Geogr. Surv. Terr., ser. 2, Bull. 4, 1875, 4, 5, 6.

>Falcones SCHLEGEL, Mus. Pays-Bas, ii, livr. i, 1862, 2 (includes *Harpagus*).

=Falconeae RIDGWAY, Orn. Illinois, i, 1889, 427.

Compactly built, long-winged Falconiformes of medium to very small size, with bill conspicuously toothed and notched, mandible truncated at tip, orbits bare and overhung by a conspicuous arched superciliary shield, nostril small, circular, with conspicuous central bony tubercle, and not more than two outer primaries with inner web emarginated, the emargination much posterior to middle portion.

Maxillary tomium with a subterminal prominent toothlike process, the mandibular tomium with a corresponding notch, the tip of the mandible truncated, that of the maxilla distinctly hooked (uncinate); superciliary process of lachrymal elongated, narrow, extending nearly across orbit; posterior margin of metasternum truncate or subtruncate, entire, preceded by a pair of oval foramina; spina interna sterni distinct, spiny; anterior angle of carina sterni projecting forward as far as the level of the spina externa; foramen supracoracoideum absent; one or two (only) outer primaries with inner webs emarginated, the emargination much posterior to middle portion. Intrinsic muscles

inserted onto a transversely elongated fibrocartilaginous bar which crosses the interannular membrane of bronchial semirings 1 and 2, this membrane very wide owing to the fact that the first bronchial semiring is much arched (the concavity being downward); while the second semiring is equally arched, but with the concavity upward; none of the tracheal rings are fused, and the last gives rise to a pesculus; bronchidesmus complete.

Bill strong, its breadth at base equaling or exceeding its height at same point, the culmen rounded (in transverse section) and strongly decurved, the tip of the mandible strongly uncinate; gonys strongly convex, prominent basally, strongly ascending and nearly straight terminally, the tip of the mandible truncate; upper outline of cere continuous with that of the culmen, sometimes slightly depressed; maxillary tomium with a subterminal prominent toothlike projection, preceded and followed by a more-or-less-deep rounded notch, the subterminal portion of mandibular tomium with a distinct notch; tip of maxilla compressed, the sides of the maxilla, as viewed from above, appearing swollen at the location of the tomial "teeth." Nostril small, nearly circular, with a conspicuous central bony tubercle. Orbital region bare; projecting superciliary shield conspicuous; lores with bristlelike (setiform) feathers arranged more or less in a whorl. Wing longer than tail, pointed, the primaries rigid, tapering to their usually pointed tips, only the outermost or two outermost with inner webs emarginated, the cuttings abrupt or angular and near tips of quills; remiges 21–25, primaries always 10. Tail with the rectrices (12) firm, more or less tapering distally, the outermost more or less bent inward distally. Tibia much longer than tarsus (but less than twice as long); tarsus usually somewhat longer than middle toe (without claw), sometimes twice as long, never with a single series of transverse scutella, either in front or behind, often covered with small roundish scales, the upper portion more or less feathered, at least in front, sometimes with upper half densely feathered; outer toe (only) connected at base with middle toe by an interdigital membrane; claws strongly curved, acute, their under surface broadly grooved or concave. Spinal pteryla starting from nape and dividing onto a long fork between the shoulders, the dorsal portion commencing with two parallel rows of simple feathers between the forks and becoming broader by addition of new rows outside the original rows, but at the same time more sparsely feathered, the two main rows uniting only at the caudal pit and then passing in a broad band to the oil gland; humeral tracts not very broad, with few but very large and strongly tubular feathers; lumbar tracts always small, each consisting of not more than 20 feathers, sometimes almost abortive, intermixed with powderdown feathers and very closely approximated to spinal tract; crural tracts formed of contour feathers

on the outside only, forming "breeches," downy on inner side; inferior tract simple as far as middle of neck, narrow, separated from the spinal tract by lateral apteria, its two limbs likewise narrow, strongly divergent and united to the axillary tract at the shoulders, but *without the inner branch* which occurs in most other Accipitres, and descends from the furcula into the bend of the neck, the *exterior branch equal in width to the main stem*, present on pectoral muscles, the interspace between these two limbs considerable (greater than usual), the exterior hook at its upper apex which occurs in many other Accipitres also wanting, the main stem closely approaching the crest of the sternum, anteriorly and diverging posteriorly, the inferior space being thus much broader on the ventral part, the two main stems curving toward the anus and terminating close to it; down feathers white or gray, remarkably soft, moldlike, clinging together when present, all with main shaft and aftershaft of equal length, everywhere sparse, sometimes entirely wanting on some apteria, especially the lateral neck spaces; contour feathers with a considerable but, as usual (in Accipitres) downy aftershaft, the main shaft rigid, the barbs, for the most part, pennaceous.

Nest usually in holes of trees or in recesses among rocks on cliffs. Eggs several, short-ovate to oval, highly colored (more or less heavily spotted with reddish brown on a whitish, buff, or light brown ground color), their shells with reddish yellow translucence.

Range.—Cosmopolitan in range. Only one genus (with several subgenera) in North and Middle America.

Genus FALCO Linnaeus

Falco Linnaeus, Syst. Nat., ed. 10, i, 1758, 88. (Type by subsequent designation, *Falco subbuteo* Linnaeus (A. O. U. Committee, 1886).)

Hypotriorchis Boie, Isis, 1826, 970. (Type, by original designation, *Falco subbuteo* Linnaeus.)

Erythropus Brehm, Isis, 1828, col. 1270. (Type, by monotypy, *Falco erythropus* Linnaeus.)

Pannychistes Kaup, Skizz. Entw.-Gesch. Eur. Thierw., 1829, 57, 190. (Type, by original designation, *Falco rufipes* Beseke=*Falco vespertinus* Linnaeus.)

Falcula Hodgson, Journ. Asiat. Soc. Bengal, vi, 1837, 365, footnote. (Type, not designated. "I exclude *Tinnunculus* etc., under the separate sub-generic title of *Falcula*.")

Dendrofalco Gray, List. Genera Birds, 1840, 3. (Type "Hypotriorchis Boie, Aesalon et Lanirius Briss . . .")

Dendrofalco Bonaparte, Icon. Faun. Ital., i, fasc. 29, 1840, text to pl. 24. (New name for *Hypotriorchis* Boie.)

Tichornis Kaup, Mus. Senckenb., iii, Heft 3, 1845 (= 1844), 257. (Type, by original designation, *Tinnunculus cenchris* "Frisch." = *Falco naumanni* Fleischer.)

Poecilornis Kaup, Classif. Säugeth. und Vögel, 1844, 108; also Mus. Senckenb., iii, Heft 3, 1845 (= 1844) 257. (Type, by monotypy, and original designation, *Falco sparverius* Linnaeus.)

Chiquera Bonaparte, Ann. Sci. Nat. (Zool.), ser. 4, i, pt. 2 ("Consp. Syst. Orn."), 1854, iii. (No type designated.)

Chicquera Gurney, Ibis, 1868, 141. (Pro *Chiquera* Bonaparte.)

Falcolus Brandt, *in* Tchitatcheff, Voy. Sci. d'Altai Or., ii, 1845, 439. (Type, by monotypy, *Falco lanarius* Linnaeus.)

Turumtia Blyth, Ibis, 1863, 9. (Type, by original designation, *T. chicquera* (Gould).)

Turamtia Stoliczka, Journ. Asiat. Soc. Bengal, xli, 1872, 230 (emendation of *Turumtia* Blyth).

Dissodectes Sclater, Proc. Zool. Soc. London, 1864, pt. ii, 248 in text. (Type, by original designation, *Falco dickinsoni* Sclater.)

Notofalco Mathews, Austral Avian Rec., ii, 1913, 56. (Type, by original designation, *Falco subniger* G. R. Gray.)

Nesierax Oberholser, Proc. Acad. Nat. Sci. Philadelphia, 1899, 203. (New name for *Harpe* Bonaparte (not *Harpe* Lacépède) and for *Harpa* Sharpe (not *Harpa* Lamarck).) (Type, by original designation, *Falco novae-seelandiae* Gmelin.)

Harpa Sharpe, Cat. Birds Brit. Mus., i, 1874, 372 (not *Harpe* Merrem, 1818). (Type, by monotypy, *H. novae zealandiae* Gmelin.)

Curvieria Roberts, Ann. Transv. Mus., viii, 1922, 210. (Type, by original designation, *Falco cuvieri* A. Smith.)

Megacerchneis Roberts, Ann. Transv. Mus., viii, 1922, 210. (Type, by original designation, *Falco rupicoloides* A. Smith.)

Lanarius (not of Dumont, 1821)[25] Lesson, Écho du Monde Savant, sér. 2, vii, No. 25, April 2, 1843, col. 589. (Type, by monotypy and tautonymy, *L. vulgaris* Lesson=*Falco lanarius* Latham.)

Gennaia Kaup, Isis, 1847, 58, 69, 364. (Type, as designated by Gray, 1849, *Falco biarmicus* Temminck.)

Gennaja (emendation) Bonaparte, Rev. Mag. Zool., sér. 2, vi, 1854, 545.

Genëa (emendation) Heuglin, Journ. für Orn., 1867, 290.

Gennaea (emendation) Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 262.

Gennadas (emendation) Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 262.

Dorcadothera Heuglin, Nacht. Bericht. Orn. Nordost-Afrikas, 1871, p. ccxii, footnote. (Type, by monotypy, *"Falco saquer"=F. sacer* Gmelin (not of Forster).)

Pnigohierax Cabanis, Journ. für Orn., 1872, 156. (Type, by original designation, *Falco lanarius* Pallas.)

Hierofalco Cuvier, Règne Anim., i, 1817 (1816), 312. (Type, by monotypy, *Falco candicans* Gmelin.)

Hyerofalco (emendation) Lesson, Complément des Oeuvres de Buffon, vii, 1836, 127.

Jerafalco (emendation) Kaup, Arch. für Naturg., i, 1850, 31.

Gyrfalco Fleming, Brit. Anim., 1828, 50. (New name for *Hierofalco* Cuvier.)

Gryfalco (lapsus?) Jardine, Nat. Library, Orn., xx, 1841, 107.

Cataractes (not of Fleming, 1822) S. D. W., Analyst, iv, No. xvi, July 1836, 296. (Type, by original designation, *Falco candicans* Gmelin.)

Hierax (not of Vigors, 1824) Morris, *in* N. Wood's Naturalist, ii, No. 9, June 1837, 123. (No type designated (includes *Falco islandicus* Latham=*F. islandus* Brunnich, also *F. peregrinus*, *F. subbuteo*, *F. acsalon*, and *F. tinnunculus*).)

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[25] Emendation of *Laniarius*.

Rhynchodon Nitzsch, Obs. Av. Art. Carot. Com., 1829, 20. (Type, as designated by A. O. U. Committee, 1886, *Falco peregrinus* Tunstall.)

Rhyncodon (emendation) Bonaparte, Nouvi Ann. Bologna, viii, 1842, 137.

Rhinchodon (emendation) Lesson, Écho du Monde Savant, sér. 2, vii, 1843, 588.

Euhierax Webb and Berthelot, Hist. Nat. Canaries, ii, 1838–44, Orn., 1841, 5. (Type, by anteriority, *Falco peregrinus* Tunstall.)

Eufalco Acloque, Faune de France, i, 1900, 113. (Type, as designated by Richmond, 1917, *Falco communis* Gmelin=*F. peregrinus* Tunstall.)

Archifalco Boetticher, Anz. Orn. Ges. Bay., i, 1927, 112. (Type, by original designation, *Falco peregrinus* Tunstall.)

Rhynchofalco Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 46, footnote. (Type, by original designation, *Falco femoralis* Temminck.)

Tinnunculus Vieillot, Ois. Amér. Sept., i, 1807 (publ. 1808), 39. (Type by tautonymy, *Falco tinnunculus* Linnaeus.)[26]

Tinunculus (emendation) Antinori, Cat. Coll. Ucc. Africa, 1864, 15.

Cerchneis Boie, Isis, 1826 "976"=970. (Type, by monotypy, *Falco rupicolus* Daudin.)

Cenchris "Boje" Brehm (C. L.), Handb. Steuben . . . Vög., 1832, xviii, 323. (Type, by monotypy, *Falco tinnunculus* Linnaeus.)

Aegypius (not of Savigny, 1809) Kaup, Skizz. Entw.-Gesch. Eur. Thierw., 1829, 29, 190. (Type, by anteriority, *Falco tinnunculus* Linnaeus.)

Tichornis Kaup, Classif. Säugeth. und Vög., 1844, 108. (Type, by monotypy, *Falco cenchris* Cuvier=*F. naumanni* Fleischer.)

Trichornis (emendation) Fitzinger, Sitzb. Akad. Wien, xxi, 1856, 289.

Paeciiornis (emendation) Bonaparte, Consp. Gen. Av., i, 1850, 27.

Aësalon Kaup, Skizz. Entw.-Gesch. Eur. Thierwelt, 1829, 40, 190. (Type by monotypy and tautonymy, *Falco aesalon* Tunstall=*F. regulus* Pallas.)

AEsalon (emendation) Kaup, *in* Jardine's Contr. Orn., 1850, 54.

Lithofalco Reider and Hahn, Fauna Boica, ii, Heft i, 1835, text to pl. 14, fig. b. (Type, by monotypy, *Falco aesalon* Tunstall.)

Lithofalco Bonaparte, Icon. Faun. Ital. i, 1840, text to pl. 24. (New name for *Aësalon* Kaup, 1822.)

Neofalco Ridgway, Man. North Amer. Birds, 1887, 248. (Type, by original designation, *Falco albigularis* Daudin.)

Very large to very small falcons (largest species with wing about 420 mm., the smallest with wing as short as 166 mm.), with one or two outermost primaries emarginated much beyond the middle portion of the inner web; maxillary tomium with a prominent toothlike subterminal process and with a corresponding notch on the mandibular tomium; tarsus less than twice as long as middle toe without claw, the latter exceeding the longest lateral toe by less than half the length (curve) of the culmen; planta tarsa covered with small scales, or at

[26] There has been considerable discussion as to the type of this genus, and the above designation is different from that given in the 1910 edition of the A. O. U. Check List. However, Vieillot called this group "Cresserelles," and dealing with the birds of North America, enumerated "La Cresserelle des Pigeons, *Tinnunculus columbarius*," and "La Cresserelle Œsalon, *Tinnunculus sparverius*." Under the latter he refers to "la Cresserelle d'Europe, *Falco tinnunculus*, Linn." as being related to it. I think this mention of *Falco tinnunculus* Linn. is sufficient to fix the type by tautonymy. (Richmond, MS.)

least without well-defined scutella; longest primaries exceeding distal secondaries by much more than one-third (sometimes by more than one-half) the length of wing; second primary much longer than fourth (usually longer than third), the first longer than fifth (sometimes longer than third); tail graduated for less, to much less, than one-fifth of its length; the details of the various parts of the body and plumage highly variable and best described for each subgenus in order to avoid many exceptions and contradictions.

The genus is cosmopolitan in range from the high Arctic latitudes to the Antipodes. It contains over 35 species with many races.

The characters of the subgenera occurring in North and Middle America are described immediately before the accounts of their included forms, as they are so diverse as to make a more detailed description of the genus as a whole full of exceptions and contradictions and to confuse rather than to clarify the picture.

Type.—Falco subbuteo Linnaeus.

KEY TO THE NORTH AND MIDDLE AMERICAN FORMS OF FALCO

a. Unfeathered part of tarsus covered with small scales, with no transverse scutellae on the lower acrotarsium and no definite rows of larger hexagonal scales elsewhere.

b. Inner toe, without claw, extending to or beyond the penultimate articulation of middle toe; first (outermost) primary shorter than the third; second primary with inner web emarginated subterminally.

c. Tarsus with more than upper half densely feathered; size very large (wings 340–420 mm.).

d. The fourth primary from the outside equal to or longer than the outermost one (Bering Sea coast; south in winter).

F. rusticolus uralensis (p. 646)

dd. The fourth primary from the outside less than the outermost one (Greenland to Arctic Alaska; south in winter).

F. rusticolus obsoletus (p. 633)

cc. Tarsus with less than upper half densely feathered; size smaller (wing usually much less than 330 mm.).

d. Median pair of rectrices unbarred (w. North America from southwestern Canada to northwestern Mexico).

F. mexicanus, ad. (p. 623)

dd. Median pair of rectrices indistinctly barred like the others (w. North America from southwestern Canada to northwestern Mexico).

F. mexicanus, imm. (p. 624)

bb. Inner toe, without claw, falling short of penultimate articulation of middle toe; first (outermost) primary much longer than the third; second primary with no emargination on inner web.

c. Tip of tail truncate or slightly emarginate; tarsus with less than one-third of anterior portion feathered.

d. Tarsus longer than middle toe without claw.

e. Upperparts without slate or bluish slate margins to the feathers; under tail coverts marked with black (all but northwest Mexico south to Argentina)_____**F. albigularis albigularis**, juv. (p. 675)

ee. Upperparts with slate or bluish slate margins to the feathers; under tail coverts with no black marks.

f. Upperparts plumbeous slate (Sonora and Sinaloa).

F. albigularis petrophilus, ad. (p. 681)

ff. Upperparts plumbeous black (all but northwest Mexico south to Argentina)----------**F. albigularis albigularis**, ad. (p. 674)

dd. Tarsus shorter than middle toe without claw.

e. Breast with no black streaks (southern Mexico to Argentina).

F. deiroleucus, ad. (p. 671)

ee. Breast with blackish streaks (southern Mexico to Argentina).

F. deiroleucus, juv. (p. 672)

cc. Tip of tail distinctly rounded; tarsus with more than one-third of anterior portion feathered.

d. Underparts of body streaked.

e. Ventral streaks very dark, dark mummy brown to dark fuscous.

f. The dark marks restricted to very broad shaft streaks, the ventral feathers very broadly margined with pale ochraceous-buff (North America generally)-------**F. peregrinus anatum**, juv. (p. 651)

ff. The dark marks occupying almost the entire vane of each ventral feather, the feathers narrowly edged with buffy white (Aleutian and Queen Charlotte Islands)-**F. peregrinus pealei**, juv. (p. 667)

ee. Ventral streaks paler dark wood brown to sepia.

f. The dark malar stripe usually narrow and pointed terminally (eastern Siberia; accidental in Alaska).

F. peregrinus harterti, juv. (p. 665)

ff. The dark malar stripe usually broad and roundly truncate terminally---------**F. peregrinus peregrinus**, juv. (extralimital) [27]

dd. Underparts of body not streaked.

e. Top of head darker, more blackish, than the back.

f. Size larger; wing, male over 330 mm, female over 370 mm. (North America generally)---------**F. peregrinus anatum**, ad. (p. 650)

ff. Size smaller; wing, male under 325 mm; female under 370 mm.

g. Malar stripe very narrow; underparts tinged with buffy (e. Siberia; accidental in Alaska).

F. peregrinus harterti, ad. (p. 665)

gg. Malar stripe fairly broad; underparts whitish.

F. peregrinus peregrinus, ad. (extralimital)

ee. Top of head like the back (Aleutian and Queen Charlotte Islands).

F. peregrinus pealei, ad. (p. 667)

aa. Unfeathered portion of tarsus covered with larger scales, the larger ones arranged in one or more definite rows or longitudinal series.

b. Inner toe without claw falling short of penultimate articulation of middle toe.

c. Length of cere on top equal to more than one-third of the length (curve) of culmen; a broad dark grayish or blackish area on sides of breast, flanks, and abdomen, meeting narrowly across upper abdomen.

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[27] **Falco Peregrinus** Tunstall, Orn. Brit., 1771, 1.—*Falco peregrinus peregrinus* Peters, Check-list Birds of World, i, 1931, 288.—*Falco barbarus* subsp. *germanicus* Erlanger, Journ. für Orn., li, 1903, 294.—*Falco peregrinus brittanicus* Erlanger, Journ. für Orn., li, 1903, 296.—*Falco peregrinus rhenanus* Kleinschmidt, Berajah, 1912, pl. 9.—*Falco peregrinus scandinaviae* Kleinschmidt, Berajah, 1918, pl. 33, p. 46.

d. Breast unstreaked, light buffy.

e. Size smaller; wings, male, averaging 240; female 270 mm. (Central America to Argentina)---**F. femoralis femoralis**, ad. (p. 687)

ee. Size larger; wing, male, averaging 257; female, 290 mm (southwest United States and Mexico).

F. femoralis septentrionalis, ad. (p. 683)

dd. Breast streaked with fuscous to fuscous-black.

e. Size smaller; wing, male, usually under 250; female, under 275 mm. (Central America to Argentina).

F. femoralis femoralis, juv. (p. 687)

ee. Size larger; wing, male, usually over 250; female, over 275 mm. (southwest United States to Mexico).

F. femoralis septentrionalis, juv. (p. 684)

cc. Length of cere on top less than one-third of the length (curve) of culmen; no broad blackish area meeting across upper abdomen.

d. Upperparts from crown to rump bluish slate to blackish slate.

e. Outer webs of primaries with whitish or pale spots (Great Plains; winters south to northern Mexico).

F. columbarius richardsonii, ad. ♂ (p. 707)

ee. No pale spots on outer webs of primaries.

f. Pale bars or spots on inner webs of primaries usually not reaching edge of feathers (western British Columbia; winters south to California)---------**F. columbarius suckleyi**, ad. ♂ (p. 712)

ff. Pale bars or spots on inner webs of primaries usually reaching edge of feathers.

g. Top of head and upper part of back darker, slate to blackish slate (eastern half of Canada south to New England; winters south to South America and West Indies).

F. columbarius columbarius, ad. ♂ (p. 691)

gg. Top of head and upper part of back lighter, deep neutral gray to slate (northwestern Alaska to Idaho and eastern Oregon; winters south to Mexico, Florida, West Indies).

F. columbarius bendirei, ad. ♂ (p. 702)

dd. Upperparts not bluish or blackish slate from crown to rump.

e. Rump and upper tail coverts with a definite slate tinge.

f. Outer webs of primaries with pale spots (Great Plains; winters south to northern Mexico).

F. columbarius richardsonii, ad. ♀ (p. 708)

ff. Outer webs of primaries with no spots.

g. Pale marks on inner webs of primaries usually not reaching the edge of the feathers (western British Columbia, winters south to California)----**F. columbarius suckleyi**, ad. ♀ (p. 712)

gg. Pale marks on inner webs of primaries usually reaching the edge of the feathers.

h. Dark streaks on underparts of body darker, fuscous (eastern half of Canada to New England; winters to South America and West Indies).

F. columbarius columbarius, ad. ♀ (p. 692)

hh. Dark streaks on underparts of body paler, sepia (northwestern Alaska to Idaho and eastern Oregon; winters south to northern Mexico, Florida, and West Indies).

F. columbarius bendirei, ad. ♀ (p. 702)

ee. Rump and upper tail coverts not tinged with slate.

f. Outer webs of primaries with pale spots (Great Plains; winters south to northern Mexico).

F. columbarius richardsonii, juv. ♂ (p. 708)

ff. Outer webs of primaries with no spots.

g. General tone of upperparts very dark, fuscous-black (western British Columbia; winters south to California).

F. columbarius suckleyi, juv. (p. 712)

gg. General tone of upperparts paler, dark sepia to fuscous:

Eastern half of Canada to New England.

F. columbarius columbarius, juv. (p. 693)

Northwestern Alaska to Idaho and eastern Oregon.

F. columbarius bendirei, juv. (p. 702)

bb. Inner toe without claw extending beyond penultimate phalanx of middle toe.

c. Median tail feathers crossed by only one bar, a broad subterminal one, otherwise uniformly colored.

d. Rectrices pale bluish gray (Eurasia; accidental in Massachusetts).

F. tinnunculus tinnunculus, ad. ♂ (p. 716)

dd. Rectrices hazel-brown.

e. No black spots on sides of median tail feathers, shafts brown.

f. With a patch of hazel on crown.

g. Dark spots on underparts confined to sides (southeastern United States)----------**F. sparverius paulus**, ad. ♂ (p. 740)

gg. Dark spots on underparts not confined to sides.

h. Larger; wing 174–198 (186 mm.) (Alaska, Canada, United States except southeastern States).

F. sparverius sparverius, ad. ♂ (p. 72

hh. Smaller; wing 163–178 (169 mm.) (northwestern Mexico).

F. sparverius peninsularis, ad. ♂ (p. 74

ff. Usually with no hazel crown patch.

g. Underparts usually plain, not spotted with blackish.

h. Larger; wings 180–194 (183 mm.) (Hispaniola).

F. sparverius dominicensis, ad. ♂ (p. 751)

hh. Smaller; wings 168–185 (173 mm.) (Cuba and Isle of Pines).

F. sparverius sparverioides, ad. ♂ (p.743)

gg. With black spots on the breast and upper abdomen (southern Mexico, Guatemala, Honduras).

F. sparverius tropicalis, ad. ♂ (p. 743)

ee. Shafts of median rectrices black; sides of feathers with black spots (Puerto Rico and Lesser Antilles).

F. sparverius caribaearum, ad. ♂ (p. 748)

cc. Median tail feathers crossed by 10 or more dark bars.

d. Top of head rufescent like the back.

e. The dark bars on the scapulars narrower than the rufescent interspaces (Eurasia; accidental in Massachusetts).

F. tinnunculus tinnunculus, ad. ♀ (p. 717)

ee. The dark bars on the scapulars as broad as the rufescent interspaces (Eurasia; accidental in Massachusetts).

F. tinnunculus tinnunculus, juv. (p. 718)

dd. Top of head grayish.

e. The underparts sparsely and lightly streaked.

f. Larger; wings 180–195 (189 mm.) (Hispaniola).

F. sparverius dominicensis, ad. ♀ (p. 751)

ff. Smaller; wings 174–189 (183 mm.) (Cuba and Isle of Pines).
F. sparverius sparverioides, ad. ♀ (p. 743)

ee. Underparts abundantly streaked with brownish to dark fuscous.

f. Ventral streaks very dark, dark fuscous (Puerto Rico and Lesser Antilles)---------**F. sparverius caribaerarum**, ad. ♀ (p. 748)

ff. Ventral streaks paler; Saccardo's umber to pale sepia.

g. Hazel crown patch very small or wanting (southern Mexico, Guatemala, Honduras).
F. sparverius tropicalis, ad. ♀ (p. 743)

gg. Hazel crown patch usually fairly extensive, sometimes very much so, covering most of head.

h. Size larger; wings usually 185 mm. or longer (Alaska, Canada, United States, except southeastern States).
F. sparverius sparverius, ad. ♀ (p. 724)

hh. Size smaller; wings usually under 185 mm.

i. Tail shorter, usually less than 120 mm. (southeastern United States)----------**F. sparverius paulus**, ad. ♀ (p. 740)

ii. Tail longer; usually over 120 mm. (northwestern Mexico).
F. sparverius peninsularis, ad. ♀ (p. 741)

Subgenus GENNAIA Kaup

Large falcons (wing about 294–355 mm.) similar in structure to *Hierofalco* but with outer toe (without claw) slightly longer than inner toe, and with tarsus relatively longer (much longer than middle toe without claw); less than upper half of tarsus feathered, the naked space on posterior side much wider.

Large falcons (wing about 294–355 mm.) similar to *Hierofalco* in structural details, but less heavily built, with bill and feet relatively smaller, tarsus much longer than middle toe without claw, with less than upper half feathered in front and with bare space on posterior side much wider, and with outer toe (without claw) slightly but decidedly longer than inner toe.

Bill moderately stout, the culmen (chord) about as long as hallux (without claw) or a little shorter; strongly decurved almost (if not quite) from base, rounded or very indistinctly ridged (*F. mexicanus*) or distinctly ridged (*F. biarmicus, F. jugger*); maxillary tomium with subterminal "tooth" prominent and immediately preceded (proximally) by a distinct concavity, sometimes followed by a slight convexity; gonys more or less convex, ascending terminally, prominent basally, more or less distinctly (but not sharply) ridged on median line; cere moderately broad, almost wholly bare; nostril moderately large, wholly uncovered. Wing long and pointed, the longest primary exceeding distal secondary by decidedly more than half the length of wing; second primary (from outside) longest (the third sometimes nearly as long in *F. mexicanus*), the first (outermost) equal to or slightly shorter than third (*F. biarmicus, F. jugger*); only the first (outermost) primary with inner web distinctly emarginated (*F. feldeggi* and *F.*

jugger) or both first and second distinctly emarginated (*F. mexicanus*), the second and third with outer webs sinuated (in all species). Tail about half as long as wing (*F. biarmicus*) to decidedly more than half as long (*F. jugger, F. mexicanus*), slightly but distinctly rounded, the graduation about equal to length (chord) of culmen (decidedly less in *F. biarmicus*), the rectrices (12) appreciably narrower terminally (especially middle pair). Tarsus about one-third to one-fourth as long as tail, rather stout, covered with small roundish scales (these somewhat larger on anterior portion of inner side), the upper portion feathered in front and on sides for between one-third and one-half the total length; middle toe, without claw, decidedly shorter than tarsus; outer toe (without claw) decidedly shorter than inner, the latter (without claw) reaching to penultimate articulation of middle toe; hallux decidedly longer than basal phalanx of middle toe, its claw decidedly shorter than the digit.

Plumage and coloration.—Plumage very compact, the remiges and rectrices rigid, the feathers of upperparts very distinctly outlined; orbits completely bare, the cere almost entirely so; thigh-plumes well developed. Head with a more or less conspicuous "mustache," originating at rictus and extending obliquely across malar region to sides of throat, and with a more-or-less broad postocular stripe or streak; adult male usually more-or-less barred above (except on pileum and primaries), the underparts white, buffy, or pale vinaceous, more or less spotted and streaked with dusky; adult females and young grayish brown above not distinctly if at all barred, the wing coverts, scapulars, and interscapulars margined with rusty or buffy.

Range.—Open or treeless districts, southern Europe and northern central Africa to India, Mongolia, etc.; one species in western North America. (Several species.)

F. mexicanus does not agree entirely in details of external structure with the type of the subgenus, which has only the first (outermost) primary with inner web emarginated, instead of the first and second, and the first primary equal to the third instead of the fourth. The tail is relatively longer in *F. mexicanus*, but not more so than in *F. jugger*, which, in the emargination and relative length of the primaries agrees with *F. biarmicus*. Notwithstanding these differences, however, the points of resemblance (even to coloration) are so numerous that the separation of *F. mexicanus* would, in my opinion, be unnecessary. Except in coloration of the head, the adult males of *F. mexicanus* and *F. biarmicus* resemble each other very closely.

FALCO MEXICANUS Schlegel

PRAIRIE FALCON

Adult (sexes alike).—Forehead white to cream buff, the feathers with very fine blackish shafts; crown, occiput, nape, interscapulars, back, rump, scapulars, and upper wing coverts Saccardo's umber to sepia, the feathers of the top of the head with distinct, the others with indistinct, blackish shafts, the feathers of the back, rump, and the upper wing coverts edged with tawny-olive and incompletely barred (the bars on the outer edges of both webs but not reaching the shafts) with avellaneous to wood brown, the feathers of the nape and

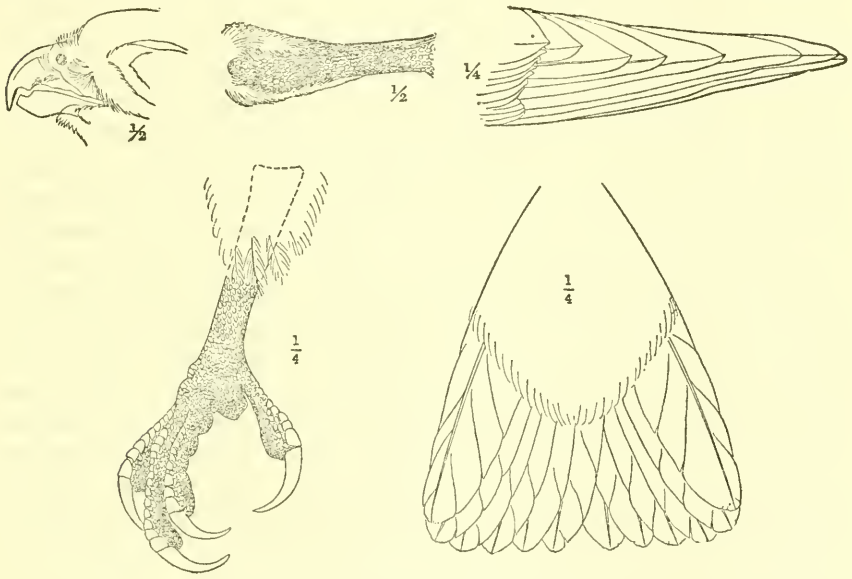

FIGURE 45.—*Falco* (*Gennaia*) *mexicanus*.

the anterior interscapulars with complete bars which are covered by the overlapping feathers; the feathers of the posterior edge of the occiput pale buffy white to cartridge buff, with blackish shafts and tawny-olive tips, forming a fairly distinct band of whitish connecting on either side with a pale buffy white superciliary stripe; some of the feathers of the crown with whitish instead of tawny-olive margins; upper wing coverts, scapulars and back feathers with a slight cinereous drab cast (this seems to be slightly more pronounced in females than in males), which increases in intensity posteriorly; remiges dull sepia washed with cinereous or hoary, slightly darker subterminally and narrowly tipped with dull avellaneous, the inner webs whitish externally except for a broad sepia tip (about 40 mm. in length on the outer primaries) this pale area crossed by 3 to 5 (on the secondaries)

to 8 to 10 (on the primaries) bands of dull sepia which merge to form a continuous lengthwise sepia area next to the shaft; the outer web of the outermost primary with very small ivory buff areas suggestive of the pale interspaces on the inner web; the innermost secondaries almost devoid of any whitish on either web; second primary from the outside the longest, then the third, first, and fourth; upper tail coverts wood brown, the more anterior ones and the rump feathers edged with cinnamon, the posterior coverts with no such markings; rectrices plain pale drab to vinaceous-buff tipped with dirty buffy white, the inner webs of all but the middle pair with eight or nine pale light ochraceous-buff to very pale avellaneous, incomplete bars, the bars merging to form a continuous pale edge to the inner web, these bars vaguely suggested on the outer webs as well as on the two outermost rectrices; lores and superciliaries like the forehead, but less yellowish; a malar stripe of dark sepia feathers, each with a black shaft streak, extends posteroventrally from the anterior angle of the eye to the sides of the throat; behind this, cheeks and sides of neck ivory buff to cartridge buff, the auriculars much mixed with sepia becoming wholly sepia posteriorly (with black shaft streaks); chin, throat, breast, abdomen, sides, thighs, and under tail coverts whitish washed with cartridge buff on the breast and pale pinkish buff on the middle of the abdomen; the chin and throat immaculate; breast and upper abdomen with numerous, small, ovate to elongated, tear-shaped spots of mummy brown, the spots becoming larger, longer, and much broader on the sides and flanks, practically coalescing into a large, somewhat interrupted patch on the flanks; thighs with a few small elongated spots on the outer side; lower abdomen and under tail coverts immaculate or with only a few, and rather faint, spots; axillars plain mummy brown with a few obsolete rusty spots toward the tip; rest of under wing coverts white, the feathers with mummy brown shaft streaks, some of which are broadened to include all the edges of the feathers; iris dull brown; cere, orbits, tarsi, and toes medium cadmium to naples yellow; bill pale greenish at base passing to bluish and dark slate at tip; claws blackish slate.

Immature (sexes alike).—Like the adult, but with the scapulars, interscapulars, back, rump, and upper tail coverts ashy avellaneous to dull grayish cinnamon barred with fuscous, the scapulars each with four or five dark bars, the shorter interscapulars with two or three such bars apiece; the median pair as well as the rest of the rectrices indistinctly barred on both webs hair brown; the nuchal collar washed with pale cinnamon-buff; the thighs with more and heavier dark brown spots; the superciliary lines with brownish streaks.

Juvenal (sexes alike).—Similar to the adult, but the general color of the feathers of the upperparts much darker, dark mummy brown

to fuscous, the pale margins and tips washed with cinnamon to pinkish buff; underparts as in immature plumage, but entirely washed with pale pinkish buff to pale ochraceous buff; rectrices as in the adult;[28] cere, orbits, and bill pale bluish, tip of bill black; tarsi and toes pale bluish, soles tinged yellowish, claws black (in some cases cere and feet tinged with yellow).

Natal down.—Pure white.

Adult male.—Wing 289–313 (299.4); tail 159–179 (169.6); culmen from cere 18–20 (18.8); tarsus 50–57 (55.9); middle toe without claw 41.5–45.5 (43.7 mm.).[29]

Adult female.—Wing 331–357 (342.8); tail 185–201 (189.7); culmen from cere 20.5–26 (22.2); tarsus 57–64 (60.7); middle toe without claw 49–53 (50.8 mm.).[30]

Range.—Resident in the Transition and Austral Zones from the valleys of central and southern British Columbia (Osoyoos Lake; Merritt, Moon's Ranch, Chilcotin; Deer Park, Columbia River; lower Frazer Valley; Chilliwack; Okanagan Landing); southern Alberta (Little Sandhill Creek); and southern Saskatchewan (St. Louis); south through Washington (Okanogan County; Brook Lake; Grand Coulee; Wallula; Lake Chelan; rare west of the Cascades); Idaho (Birch Creek; Blackfoot Mountains); Montana (Cone Butte; Camp Baker; Two Forks Milk River; Billings; Buffalo); North Dakota (Towner County; Mauvais Coulee; Red River Valley; eastern McKenzie County; Little Missouri River); Oregon (Camp Harney; Wallows; Willamette Valley; Eagle Point; Dallas; Fort Klamath; Hay Creek; Riverside); Nevada (Ash Meadows; Ruby Mountains; Humboldt; Carson; Quina River; Blair); Utah (Bear River; Echo Canyon; Wasatch Mountains; Salt Lake Valley; Parleys Peak); Wyoming (Yellowstone Park; Cheyenne; Fremont Peak); South Dakota (Harding County); Colorado (Moffatt County; Boulder County; Denver; Garden of the Gods; South Park); Kansas (rare in the eastern, not uncommon in the western part of the State); California (San Miguel Island; Santa Barbara; Fresno County; Furnace Creek Ranch, Death Valley; Yosemite; Baldwin Lake; San Bernardino Mountains; Stockton; Modoc County; Lassen Peak; Summit Meadows; Sacramento Plains; Petaluma; Shasta Valley; Bieber; Resting Springs; Panamint Valley); Arizona (Tucson; Camp Bowie; San Francisco

[28] It seems unlikely that the juvenal and adult rectrices should be alike and an intermediate different plumage come between them, but that is the only conclusion I can come to on the basis of a long series of specimens (53 birds).

[29] Seventeen specimens from California, Arizona, Mexico (Chihuahua and Baja California), Nevada, New Mexico, North Dakota, Oregon, Colorado, Idaho, and Kansas.

[30] Eighteen specimens from Sonora; California; Arizona; Nevada; Oregon; Wyoming; Utah; Kansas; Montana; and Saskatchewan.

Mountains; Springerville; La Osa; Gila City; Yuma); New Mexico (Santa Fe; Santa Rosa; Lake Burford; San Augustine Plains; Magdalena; Fair View; Gila River; Lamy; La Bajada Hill; Beaver Lake; Chloride; between Tres Piedras and Taos; Las Vegas; Big Hatchet Mountains; between Roswell and Capitan Mountains); Oklahoma (rare resident in western part of State—Black Mesa; Red River, Harmon County; rare transient and winter visitant in rest of State); Texas (Austin; Red River); to Baja California (Miraflores; San José del Cabo; Cape San Lucas; San Esteban; Comondú, Santa Margarita Island; Guadalupe Island; San Luis Island; El Rosario; San Felipe; San Telmo; Vallecitos; Sierra San Pablo Mártir).

In winter the species is partly migratory, some of the northern breeders wandering southward, but birds are seen throughout the winter as far north as southern British Columbia; south to the northern half of the mainland of Mexico (Monterrey; Sonora—San Domingo; Hermosillo; Zacatecas; Durango; Agua Caliente; Nuevo León; Chihuahua; Tamaulipas).

Casual east to Manitoba; eastern Minnesota; Illinois (Rock Island; Wabash County; Lawrence County); Indiana (Sullivan County); Missouri (Marysville—breeding); and Iowa (Black Hawk; Buena Vista; Mills—Pottawattamie; Honey Creek Lake; Mills County; Lake Okoboji; Story County), and to Oaxaca.

Type locality.—Mexico=Monterrey (Swann, Synop. Accip., ed. 2, 1922, 207).

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[31] The dark-colored (rear) figure and part of the description were based on a specimen, from Oregon, which was subsequently (in 1873) made the type of *Falco communis*, var. *pealei* Ridgway.

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Falco saker, γ polyagrus Ridgway, Field and Forest, ii, 1877, 210 (Colorado).

Falco saker, β polyagrus Ridgway, Orn. 40th Parallel, 1877, 577 (Humboldt Marshes, Carson, etc., Nev.).

Falco sublanarius Pelzeln, Ueb. Geier und Falk., ii, 1863, 19 (*ex* Natterer MS.).

Subgenus Hierofalco Cuvier

Very large falcons (largest members of the family, wing about 340–420 mm.) with more than upper half of tarsus densely feathered anteriorly and laterally, the remaining portion covered with small roundish scales, outer toe (without claw) extending to beyond penultimate articulation of middle toe and very little if any beyond end of inner toe, and with inner web of second primary (from outside) more or less distinctly emarginated near tip.

Bill relatively large and stout, its depth at base of rhamphotheca a little greater than its width at same point and very nearly equal to distance from anterior margin of cere (in front of nostril) to tip of maxilla; maxilla swollen laterally and abruptly contracted in width from in front of tomial "teeth"; culmen (chord) nearly half as long as middle toe (without claw), broadly rounded (not ridged); width be-

tween anterior extremities of feathered portion of rami nearly equal to length of gonys, the latter very indistinctly if at all ridged, rather strongly convex, ascending terminally, not prominent basally (owing to width of mandibular rami); maxillary tomium with subterminal "tooth" large and very prominent, behind which the tomium is first concave, then convex and again concave; nostril relatively large, broadly oval (with axis vertical). Wing long and pointed, the longest primaries exceeding distal secondaries by decidedly less than half the length of wing; second and third primaries longest, the first (outermost) shorter than fourth; inner web of outermost primary abruptly emarginated about opposite tip of seventh primary (from outside); that of the second less abruptly but distinctly emarginated a little anterior to tip of fifth primary; outer webs of second and third primaries sinuated. Tail more than half as long as wing, rounded, the graduation about equal to length of bare portion of acrotarsium, the middle pair of rectrices tapering distally and slightly shorter than next pair. Feet very strong, the middle toe, without claw, decidedly shorter than tarsus, the latter with upper half densely feathered (except a narrow strip on planta tarsi), the bare portion covered with small roundish or irregularly oval scales, these larger and more transverse in front, especially on inner side; outer toe (without claw) extending decidedly beyond penultimate articulation of middle toe, and equal in length with inner toe; hallux nearly as long as combined length of first two phalanges of middle toe and slightly to decidedly longer than its claw.

Plumage and coloration.—Plumage compact, the feathers rather hard and stiff, especially the primaries and rectrices; orbital region bare, but not extensively so; loral region and cere behind nostril densely clothed with narrow feathers with long bristlelike tips. Adults grayish brown or dusky above, usually more-or-less barred or transversely spotted with pale buffy or dull whitish, the posterior portions more broadly and regularly barred and of a more bluish gray cast, the underparts mostly white more or less spotted with grayish brown or dusky, the markings longitudinally guttate on chest, in form of bars on flanks, thighs, and under tail coverts. Young grayish brown, the head and neck streaked with whitish (this sometimes predominating) the feathers of back, wings, etc., margined with whitish or buffy; underparts white or buffy white, longitudinally striped with grayish brown. One form nearly uniform dusky grayish brown or sooty, another white with transverse markings of grayish brown or dull slate color in adults and longitudinal markings in young.

Range.—Circumpolar regions, migrating southward. (One species with several races.)

FALCO RUSTICOLUS OBSOLETUS Gmelin

American Gyrfalcon

Adult (sexes alike).—White phase: Extremely variable, but generally the birds fall into one of two types:

a. Bar-tailed variety: Entire head, body, wings, and tail white, usually with a faint creamy tinge, the top of the head with narrow chaetura black shaft stripes, these broadening into tear-shaped subterminal spots on the nape; interscapulars, scapulars, upper wing coverts, back, rump, upper tail coverts, remiges, and rectrices broadly barred with dark sepia to chaetura drab or even chaetura black, only the subterminal dark band visible on the scapulars; interscapulars and upper wing coverts, often somewhat broadly crescentic in shape;

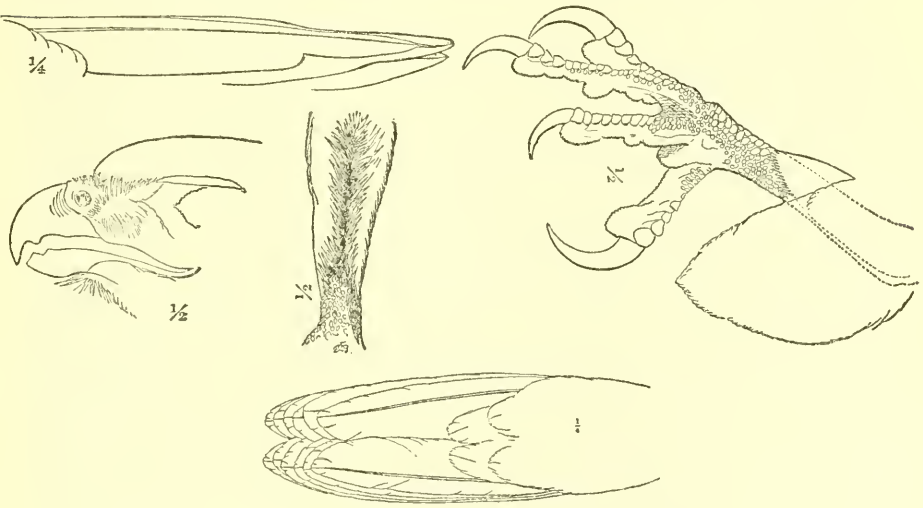

Figure 46.—*Falco* (*Hierofalco*) *rusticolus*.

the bars on the rump and upper tail coverts narrower; the primaries with broad chaetura black apical areas very narrowly edged with white, the dark bars disappearing on the inner webs, which are largely immaculate white; the fourth primary (from outside) shorter than the outermost one; median pair of rectrices with both webs crossed by 9 to 11 dark bars (about 10 mm. broad), the other pairs with the bars chiefly on the outer webs and becoming reduced in size to spots and in number as well on the outermost tail feathers; lores and cheeks and auriculars with some fine dusky shaft streaks; chin, throat, breast, and middle of abdomen either immaculate white or with a few small tear-shaped spots of chaetura drab on the breast and abdomen; sides and flanks similar to breast and abdomen; thighs either flecked or immaculate white; under tail coverts usually un-

marked; under wing coverts usually white with a few tear-shaped chaetura drab spots; iris dark brown; eyelid pale flesh; cere light yellow; bill pale yellowish gray, more yellowish at base, and dusky at the tip; tarsi and toes light yellowish gray, claws pale horn color.

b. Plain-tailed variety: Similar to the preceding, but with the tail unmarked white, the remiges unbarred, but with chaetura drab shaft stripes broadening into a wide apical dark area as in the barred variety; scapulars, interscapulars, upper wing and tail coverts, back, and rump unbarred, but with broad terminally spatulate shaft stripes of chaetura drab; underparts as in the barred variety.[32]

Adult (sexes alike).—Gray phase: Entire upper parts of head, body, wings, and tail deep neutral gray with or without a dark sepia tinge, the head with darker gray shaft stripes and often with whitish margins to the feathers, producing a white-streaked appearance, in other cases with no white edges; scapulars, interscapulars, back, rump, upper wing and tail coverts with dark shafts and edged narrowly with grayish white to pale buffy white and barred with the same, the light bars widely spaced and variable in their extent, some being reduced to mere spots on the two webs of individual feathers; remiges dark sepia with a grayish wash, the primaries indistinctly barred or mottled with grayish white on the outer webs and crossed by 15 or more broad white bars on the inner webs, the dark, narrower interspaces becoming incomplete dark bars not always quite reaching the margin of the web, but confluent along the shaft; the second primary from the outside the longest, then the third, first, and fourth; the primaries with a long terminal unbarred sepia area on both webs, narrowly tipped with whitish, secondaries incompletely barred with pale grayish to buffy white on both webs, the pale bars not always reaching the shaft; rectrices crossed by 10–12 whitish or grayish bands about equal in width to the dark interspaces, the pale bands freckled with slate gray to grayish sepia; rectrices tipped with white; lores, cheeks, and auriculars whitish, with a creamy wash in some cases, the feathers with chaetura drab shaft streaks of variable width; in some cases a pronounced malar stripe results from the widening

[32] While these two varieties are well marked in series, individual birds may somewhat combine the characters of the two. Thus, I have seen specimens with some bars on the rectrices, but only longitudinal streaks on the back and upper wing coverts, and others with some bars on the upperparts and few or none on the tail. Every character breaks down in a long series, but the two general types do stand out fairly well. Hartert (Vög. pal. Fauna, ii, 1913, 1065) has suggested that the barred-tail, barred-back birds are the older adults, but this is not necessarily the case. I have seen juvenal birds, taken from the nest, of both the barred and the unbarred varieties, which were very similar to adult birds except for the color of the bill and feet. I have also seen plain-tailed young moulting into barred-tailed plumage.

of the shaft streaks, in others no well-defined malar stripe is present; chin, throat, breast, abdomen, sides, flanks, thighs, and under tail coverts white, generally with a wash of cartridge buff or cream color, the chin and upper throat usually immaculate, sometimes with dusky shafts; lower throat, breast, and abdomen with dark sepia shafts widening apically into tear-shaped spots; sides, flanks, and thighs usually with the shaft streaks more pronounced and broadening more extensively, even forming transverse bars in some instances; under tail coverts immaculate or marked like abdomen; under wing coverts white, barred broadly with dark sepia to fuscous; unfeathered parts as in white phase.

Juvenal (sexes alike)—White phase.[33]

a. Bar-tailed variety: Variable, but similar to the adult (also variable), but with the chaetura-black to dark sepia subterminal crescentic marks on the feathers of the upper surface of the body and wings of the adult enlarged to deep wedge-shaped areas covering most of the exposed portions of the feathers, especially of the scapulars, interscapulars, and upper back, producing almost a scalloped effect on these feathers with the white edges; the shaft streaks on the crown and cheeks generally heavier than in the adult and the tear-shaped streaks on the underparts also heavier and more numerous; the under wing coverts more streaked with dark sepia to chaetura black than in adults; cere and bill pale plumbeous, tarsi and toes pale bluish, claws black; orbital skin pale plumbeous.

b. Plain-tailed variety: Similar to adults, but with the brown markings on the scapulars, interscapulars, and upper wing coverts broader; underparts not more heavily streaked, however; cere and bill pale bluish plumbeous; tarsi and toes pale bluish.

Juvenal (sexes alike).—Gray phase, pale variety: Variable; entire top of head dark sepia to chaetura drab, the feathers edged with white to pale avellaneous, sometimes the edgings so broad as to reduce the dark color to a mere shaft stripe, in other cases, narrow and relatively indistinct, the pale areas usually wider and more noticeable on the nape than on the crown; entire upperparts of body and the upper wing coverts sepia to dark sepia edged narrowly with drab or dirty whitish; in some birds these feathers are unmarked, in others they are transversely spotted (or incompletely banded) with buffy white to pale avellaneous, thus producing two quite different types of coloration, a uniform and a spotted one; primaries externally and terminally dark sepia, the outer webs may be indistinctly mottled with buffy

[33] It has been suggested by Swann and other writers that the gyrfalcons pass through numerous plumages between the juvenal and adult stages, but I have seen not the slightest evidence of this in a very long series of skins or from literature or accounts of birds raised in captivity. To attempt to allocate plumage phases to age chronology seems arbitrary and pointless.

white or not, tipped with whitish; the inner webs whitish for the greater part of their length (except for the tip), the white area taking the form of a series (15 or so) of incomplete white bars, confluent at the edge of the web, but not reaching the shaft; secondaries plain dark sepia in uniform-backed birds, marginally crossed by transverse spots of pale avellaneous to buffy white in the case of spotted-backed birds; rectrices as in gray-phase adults, but more brownish sepia to chaetura to dark olive-brown with the pale bars almost hair brown on the median pair and progressively lighter on the inner webs of the more lateral feathers; in the case of uniform-backed birds the median pair of rectrices may be almost unbarred, the lighter bars being so faintly paler than the dark ones as to be quite hard to see; sides of head and neck whitish to pale buff heavily streaked with dark sepia, the streaks narrower, merely pronounced shaft streaks, on the cheeks and auriculars, which are sometimes much washed with drab or hair brown; a more or less distinct malar stripe of dark sepia usually present; chin and upper throat whitish with a cream or buff tinge and with fine dusky shaft streaks which become broader on the throat; rest of underparts whitish like the chin and upper throat, but very broadly and abundantly streaked with dark sepia to fuscous, the markings usually darkest on the sides and flanks, narrow and paler on the thighs and under tail coverts; under wing coverts whitish irregularly and incompletely barred or spotted with dark sepia and usually with dark sepia shaft streaks; iris dark brown; cere and bill pale plumbeous; feet pale bluish or pale bluish green; claws black.

Juvenal, dark variety (females only).—Gray phase: Similar to the last, but much darker; entire upperparts fuscous, the crown, occiput, and nape often streaked with buffy white; the feathers of the back and upper surface of wings edged with dull sepia; unbarred or otherwise marked; primaries with the pale color on the inner webs much reduced sometimes to a slight freckling, sometimes the marginal bars not extending more than halfway to the shaft; secondaries uniform fuscous, unmarked; rectrices dull fuscous, tipped narrowly with dirty white, the pale bars reduced to transverse spots and often entirely absent save for one or more subterminal small spots on each feather; lores, cheeks, and auriculars dark fuscous; entire underparts very dark fuscous to fuscous-black, the feathers edged with pale buffy white, the edgings often narrow, producing an appearance of narrow pale streaks on the dark background; in other cases, much broader, usually broad on the chin and upper throat; the thighs and under tail coverts spotted or barred with buffy white; under wing coverts fuscous-black or dark fuscous, the outer and the greater ones spotted with buffy white. (This plumage phase appears to be confined to Labrador birds, not all of which, however, are of this type.)

Natal down.—Said to be white with pale fulvous wash, becoming grayer with age.

Adult male.—Wing 340.3–378 (364.3); tail 203–244 (221.5); culmen from cere 20.5–25 (22.8); tarsus 53.3–68 (62); middle toe without claw 45.7–53.3 (49.2 mm.).[34]

Adult female.—Wings 368–423 (402.6); tail 215–259 (239.6); culmen from cere 23–27.9 (25.4); tarsus 58–72 (64.6); middle toe without claw 48.2–55 (52.9 mm.).[35]

Range.—Breeds from high Arctic latitudes in Greenland (both coasts, Angmagsalik; Egedesminde; Etah; Godthaab; Jacobshavn; Kangamint; Nanortalik; Nordletd; Novasak; Oju; Sukkertoppen, Ymer Island); Ellesmere Island (East Bay); Baffin Island (Magee Lake, Blackhead Island, Markham Bay, Cape Dorset, Lady Franklin Bay); Digges Island, Hudson Strait; Southampton Island; Grinnell Land (Cape Hayes, Cape Frazer, Cape Napoleon—lat. 79°47′ N.); Victoria Island (Taylor Island); Northwest Territories (Franklin Bay, Cape

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[34] Forty-two specimens from Greenland, Labrador, Alaska, Baffin Island, and Southampton Island. Alaskan birds average smaller than the others, as may be seen from the following figures, but the Alaskan series is small. Greenland birds are slightly larger than Labrador ones, but the difference is small and the overlapping is great.

Four Alaskan males.—Wings 340.3–349.2 (346.0); tail 203.2–215.9 (210.8); culmen from cere 21.6–23.3 (22.6); tarsus 53.3–58.4 (57.1); middle toe without claw 45.7–48.2 (47.6 mm.).

Fifteen Greenland males.—Wing 355.6–378 (372.3); tail 215–241.3 (224.3); culmen from cere 22.8–24.1 (23.3); tarsus 58.4–68 (62.9); middle toe without claw 47–53.3 (49.7 mm.).

Three Southampton Island males.—Wing 355–370 (365.3); tail 215–235 (224.3); culmen from cere 24–25 (24.3); tarsus 60–64 (62); middle toe without claw 48–49 (48.3 mm.).

Thirteen Labrador males.—Wing 342.9–370.8 (360.5); tail 203.2–244 (221.1); culmen from cere 20.2–23 (21.9); tarsus 59.3–66 (62.5); middle toe without claw 47–51 (49.4 mm.).

In all these figures there are probably a number of young birds in the white plumage in which the ages are indistinguishable.

[35] Fifty-nine specimens from Greenland, Labrador, Baffin Island, Southampton Island, and Alaska.

Four Alaskan females.—Wing 368.3–400 (389.6); tail 220.9–259 (243.8); culmen from cere 23.3–26.6 (25.2); tarsus 61.4–64.7 (63.4); middle toe without claw 48.2–53.3 (52 mm.).

Four Southampton Island females.—Wing 398–408 (404); tail 240–251 (244.4); culmen from cere 25–26 (25.4); tarsus 64–72 (68.5); middle toe without claw 52–55 (54 mm.).

Twenty-six Labrador females.—Wing 370–412.5 (393.6); tail 228–266.5 (248.8); culmen from cere 23–26 (25.1); tarsus 63–68 (65.6); middle toe without claw 51–54.6 (52.9 mm.).

Twenty-three Greenland females.—Wing 368–423 (410.5); tail 215–266 (227.8); culmen from cere 23–27.9 (25.7); tarsus 58–71 (62.4); middle toe without claw 50–54.6 (52.7 mm.).

Bathurst; Bernard Harbor, Coronation Gulf); northeastern and northern Alaska (Point Barrow, Ugashik, Collinson Point, Yukon); south to northern Labrador (Fort Chimo, Fort Nascopie, Ungava Bay, Cape Chidley); and northern Newfoundland Labrador (Okak, Nain, Hopedale, Ramah) in the east and to the Atlin region of British Columbia in the west.[36]

Winters more or less throughout its range but wanders very irregularly southward across Canada—Straits of Belle Isle, Nova Scotia, Quebec, Montreal, Ontario, Manitoba (Aweme), British Columbia (Fraser River, Sumas Prairie, Kelowna), and Vancouver Island (Comox)—to Newfoundland and the northern United States from Maine (Eagle Island, East Waterford, South Winn, Cape Elizabeth, Katahdin Iron Works, North Deering, Rockland, Brunswick, Spruce Head); New Hampshire (Milford, Exeter); Massachusetts (Northampton, Boston, Breels Island, Essex, Stowe, Wayland, Melrose, Newton, Ipswich); Rhode Island (Providence, Narragansett, Conanicut Island); Connecticut (Durham); New York (Auburn; Aurora; Bellport, Long Island; Canandaigua; Flushing, Long Island; Monroe County; New York City; Pond Quoque, Long Island; Rochester; Rome; Schenectady; Troy; Westchester County); and Pennsylvania (Lancaster County); to Ohio; Michigan (Sault Ste. Marie); Wisconsin (Prairie du Sac, Skunk Island); Minnesota (Minneapolis, Madison); North Dakota (Red River Valley, Mandan, Vermillion); Nebraska (Elk Creek); Kansas (Manhattan); Montana (Collins, Teton County); Washington (Spokane, Chelan); Oregon (Scio); and the Queen Charlotte Islands, British Columbia. Also to Iceland, the Faroës, England, Ireland, northern France and Germany (rarely), Netherlands, Belgium, the Baltic states, and Portugal.

Type locality.—Hudson Bay.

Falco freti hudsonis Brisson, Orn., i, 1760, 356 (Hudson Strait).

Falco islandus Brunnich, Orn. Bor., 1764, ii, Nos. 7, 8, 9.—Fabricius, Fauna Groenlandica, 1780, 58, No. 35.—Latham, Synopsis, Suppl., i, 1787, 282.—Gmelin, Syst. Nat., i, pt. 1, 1788, 271.—? Bechstein, Orn. Taschenb., 1803, 40.—Turton, Gen. Syst. Nat., i, 1806, 155.—Dresser, Orn. Misc., i, 1876, 190 (Labrador).—Merriam, Auk, ii, 1885, 315 (Point de Monts and Godbout, Quebec, Jan. and March, fide Comeau).—American Ornithologists' Union, Check-list, 1886, No. 353; ed. 2, 1895, 137; ed. 3, 1910. 163.—Ridgway, Man. North Amer. Birds, 1887, 244.—Harvie-Brown, Auk, viii, 1891, 236 (Ungava Bay, Quebec).—Bendire, U. S. Nat. Mus. Spec. Bull. 1, 1892, 281 (Fort Chimo, Quebec; nesting; winter).—Brewster, ed. Minot's Land and Game Birds New England, 1895, 478 (New England records).—Nash, Check List Birds Ontario, 1900, 30 (Ontario; accid.); Check List Vert. Ontario; Birds,

[36] It has been stated by several authors as probable that the breeding form on Spitzbergen and Franz Josef Land may be the same as the Greenland form, but of this no confirmation or proof has been forthcoming. The birds of those islands may well be intermediate between typical *rusticolus* and *uralensis*.

1905, 42 (Ontario).—Preble, North Amer. Fauna, No. 22, 1902, 107 (Moose Factory, Ontario, Ridgway's record).—Macoun, Cat. Can. Birds, ii, 1903, 248, (Port Burwell, Labrador July, ex Bell); ed. 2, 1909, 271 (Cape Chidley, Labrador, nesting, fide Low).—Eifrig, Auk, xxii, 1905, 239 (Cape Chidley, Labrador, breeding, fide Low).—Dionne, Ois. Quebec, 1906, 210 (Canadian Labrador, fide Trembley).—Townsend and Allen, Proc. Boston Soc. Nat. Hist., xxxiii, 1907, 368, 423 (Labrador Peninsula, res.; records and references); *in* Grenfell, Labrador, 1909, 380, 474 (Canadian Labrador; res.).—Anderson, Rep. Dept. Mines, Canada, for 1916 (1917), 379 (spec. from Bernard Harbor, Northwest Territory).—Townsend, Mem. Nuttall Orn. Club, No. 5, 1920, 106 (Essex County, Mass.; very rare).—Bowles, Condor, xxiv, 1922, 28, in text (Shonkin Creek, near Fort Benton, Mont.; spec.).—Gibson, Auk, xxxix, 1922, 361 (n. Greenland).—Soper, Auk, xl, 1923, 498 (Wellington and Waterloo Counties, Ontario); Nat. Mus. Canada, Bull. 53, 1928, 107 (s. Baffin Island).—Mitchell, Can. Field Nat., xxxviii, 1924, 109 (Saskatchewan; acc. in winter; spec.); Condor, xxvii, 1925, 96 (Indian Head, Saskatchewan).—Taverner, Birds Western Canada, 1926, 206 (fig.; descr.; habits; etc.; w. Canada).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 158, pl. 38, 42 (col. fig.; descr.; distr. New England).—Hantszch, Can. Field Nat., xlii, 1928, 18 (Labrador; spec.; crit.).—Reid, Wils. Bull., xl, 1928, 201 (spec., near Buffalo, N. Dak.).—Fleming, Auk, xlvii, 1930, 68 (spec.; Oshawa Harbor, Lake Ontario).

Falco candicans β islandicus Gmelin, Syst. Nat., i, pt. 2, 1788, 275.—Schlegel, Rev. Crit., 1844, 1; Abh. Zool. Anat., i, 1884, 14, part.

Falco candicans islandicus Schlegel, Abh. Geb. Zool., 1841, 14; Rev. Crit., 1844, i, part.

Falco islandicus Latham, Index Orn., i, 1790, 32.—Daudin, Traité d'Orn., ii, 1800, 100.—? Meyer and Wolf, Taschenb. deutschl. Vög., i, 1810, 65.—Temminck, Man. d'Orn., ed. 2, 1820, 17.—Stephens, *in* Shaw's Gen. Zool., xiii, ii, 1826, 39.—Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 27.—Audubon, Orn. Biogr., ii, 1834, 552 (near Bradore, Quebec; nesting); iv, 1838, 476 (cf. Labrador specimens); Birds Amer., 1836, pl. 366; 8vo ed., i, 1840, 81, pl. 19.—Hancock, Ann. Nat. Hist., ii, 1839, 247; Rev. Zool., 1839, 123.—Peabody, Rep. Orn. Massachusetts, 1839, 260 (rare in winter).—Bonaparte, Consp., i, 1850, 24.—Holboell, Fauna Grönl., *in* Zeitschr. Ges. Naturw., iii, 1854, 18.—Putnam, Proc. Essex Inst., i, 1856, 226.—Cassin, *in* Baird's Birds North Amer., 1858, 13, part (descr.; adult).—Baird, Cat. North Amer. Birds, 1859, No. 12.—Newton, Proc. Zool. Soc. London, 1870, 384 (Fort Yukon, Alaska); Proc. Acad. Nat. Sci. Philadelphia, 1871, 95 (crit.).—Willis, Ann. Rep. Smiths. Inst. for 1858 (1859), 280 (Nova Scotia).—Weiz and Packard, Proc. Boston Soc. Nat. Hist., x, 1866, 267 (Okak, Labrador; breeding).—Allen, Amer. Nat., iii, 1869, 513, 514.—Orton, Amer. Nat., iv, 1871, 711 (Audubon's specimen in Mus. Vassar College).—Schlegel, Rev. Acc., 1873, 34.—Coues, Check List N. Am. Birds, ed. 2, 1882, No. 500: Key North Amer. Birds, ed. 2, 1884, 533, part.—de Puyjalon, Hist. Nat. Usage Chasseurs Canadiens, 1900, 421 (Eskimo Point to Blanc Sablon, Quebec, autumn).—Taverner, Auk, xliv, 1927, 222 (Indian Head, Saskatchewan).

Falco gyrfalco islandicus Schlegel, Mus. Pays-Bas, ii, Falcones, 1862, 14.

Falco (*Hierofalco*) *gyrfalco*, var. *islandicus* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 108, 113, part (s. Greenland; ne. United States as far south as Long Island, in winter).

Falco (*Hierofalco*) *islandicus* RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, xxii, 1870, 140.

Falco (*Hierofalco*) *sacer* b. var. *islandicus* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 44 (Greenland).

Falco rusticolus islandus HELMS, Medd. Grønland, lviii, 1926, 256 (Angmagsalik, Greenland; habits).—KOELZ, Wils. Bull., xli, 1929, 208, in text, part (Arctic America).—NICHOLSON, Ibis, 1930, 310 (Greenland; habits; crit.).—AUSTIN, Mem. Nuttall Orn. Club, No. 7, 1932, 68, in text (range in Newfoundland Labrador; crit.).

Hierofalco islandicus GRAY, List Gen. Birds, ed. 2, 1841, 4, part.—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, 1855, 278, 279.—LAWRENCE, Ann. New York Lyc. Nat. Hist., viii, 1866, 280.—BREWER, Proc. Boston Soc. Nat. Hist., xvii, 1875, 444.

Hierofalco islandus SHARPE, Cat. Birds Brit. Mus., i, 1874, 414, part.—?GURNEY, Ibis, 1882, 587–591 (crit.); List Diurn. Birds Prey, 1884, 111.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 243 (Fort Chimo, Quebec; breeding; Labrador, e. coast).

Hierofalco gyrfalco islandus RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 192; North Amer. Birds, 1881, No. 412 a.

Hierofalco gyrfalco islandicus BROWN, Proc. Portland Soc. Nat. Hist., 1882, 21 (rare; 1 killed Cape Elizabeth, Oct. 13, 1877).

Hierofalco rusticolus islandus OBERHOLSER, Auk, xxxviii, 1921, 266 (s. Greenland and ne. North America).

Falco islandus fuscus MÜLLER, Prodr. Zool. Dan., 1776, pp. viii, 73 (=juvenal).

Falco fuscus FABRICIUS, Fauna Groenlandica, 1780, 56.

Falco rusticolus (not of Linnaeus, 1758) FABRICIUS, Fauna Groenlandica, 1780, 55.—? MOHR, Islandsk. Naturh., 1786, 19 (part).—LATHAM, Index Orn., i, 1781, 28.—GMELIN, Syst. Nat., i, pt. 1, 1788, 268, part (Greenland).—STEJNEGER, Auk, ii, 1885, 188, part (nomenclature).—AMERICAN ORNITHOLOGISTS' UNION, Check-List, 1886, No. 354.—RIDGWAY, Man. North Amer. Birds, 1887, 245.—COOKE, Bird Migr. Mississippi Valley, 1888, 118 (Manhattan, Kans., Dec. 1, 1880).—GOSS, Hist. Birds Kansas, 1891, 278 (Kansas; accid.).—BREWSTER, ed. Minot's Land and Game Birds New England, 1895, 478 (crit.; New England records).—LANTZ, Trans. Kansas Acad. Sci., 1896–97 (1899), 256 (Kansas; accid.).—BAILEY, Handb. Birds Western United States, 1902, 166 (w. United States; descr.).—NASH, Check List Vert. Ontario: Birds, 1905, 42 (Ontario).—TOWNSEND and ALLEN, Proc. Boston Soc. Nat. Hist., xxxiii, 1907, 368 (Fort Chimo, Quebec; winter); *in* Grenfell's Labrador, 1909, 380, 474 (Canadian Labrador; winter).—DAWSON and BOWLES, Birds Washington, 1909, ii, 522 (Washington; habits).—SLOANAKER, Condor, xxviii, 1926, 172, in text (near Spokane, Wash.); xxix, 1927, 158 (Chelan, Wash., and Queen Charlotte Island).—PRILL, Wils. Bull., xl, 1928, 112 (Scio, Oreg.; spec.).—KOELZ, Wils. Bull., xli, 1929, 208, in text (crit. tax., plum. distr.).—LAING and TAVERNER, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 80, (Chitina River region, Alaska).—MUNROE, Condor, xxxii, 1930, 66 (Vernon, Brit. Columbia).—TAVERNER and SUTTON, Ann. Carnegie Mus., xxiii, 1934, 28 (Churchill, Manitoba; irreg. trans. and winter vis.; crit.).—TAVERNER, Birds Canada, 1934, 144 (Canada; genl.); Canada's Eastern Arctic, 1934, 119, in text (throughout Arctic Canada); Can. Water Birds, 1939, 154 (Canada: general).—MILLER, Condor, xxxvii, 1935, 78, in text.—PETTINGILL, Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 332 (Grand Manan; rare winter; 3 specs.).—ALLIN, Trans. Roy. Can. Inst., xxiii, pt. 1, 1940, 95 (Darlington Town-

ship, Ontario; 1 rec.).—Bird, Ibis, 1940, 671, in text (East Greenland; res.).—Black, Auk, lviii, 1941, 254 (Jefferson County, Wis.; spec.).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 45 (Prince Edward County, Ontario; 1 sight rec.).—Munro, Can. Journ. Res., D., xxiii, 1945, 56 (British Columbia; Cariboo Parklands; 1 rec.).—Bond, Condor, xlviii, 1946, 107, in text (competition with duck hawk).—Murie, Condor, xlviii, 1946, 254 (Alaska, Mount McKinley National Park).—Spofford, Auk, lxiii, 1946, 87 (patterns of remiges).

Falco rusticolus rusticolus Over and Thoms, Birds South Dakota, 1921, 87 (South Dakota; rare in winter; spec.).—Wood, Misc. Pub. Mus. Zool. Univ. Michigan, No. 10, 1923, 41 (North Dakota; 3 specs.; accid.); Auk, xlii, 1925, 452 (Mandan, N. Dak.).—Taverner, Birds Western Canada, 1926, 206, in text (plum.; fig.).—Swarth, Univ. California Publ. Zool., xxx, 1926, 111 (Atlin region, Brit. Columbia; nesting).—Williams, Wils. Bull., xxxviii, 1926, 33 (status, Red River Valley, ne. North Dakota).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 160, pl. 42 (fig., descr., habits, New England records).—Wondergem, Auk, xliv, 1927, 250, in text (Aurora, N. Y.).

Falco rusticolus subsp. Hill, Auk, lxi, 1944, 230, 231 (meas.).

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Falco albus Kluk, Hist. Nat., ii, 1779, 206.

Falco islandus, β albus Gmelin, Syst. Nat., i, pt. 2, 1788, 271.

Falco buteo δ Latham, Index Orn., i, 1781, 24; Gen. Hist., i, 80, A.

Falco lagopus β Latham, Index Orn., i, 1781, 19 (=*Falco fuscus* Fabricius); Gen. Hist., i, 1821, 68, A; Syn., Suppl., i, 1787, 36.

Falco gyrfalco (not of Linnaeus) Boddaert, Tabl. Planches Enlum., 1783, 13, 26 (*ex* Pl. Enl. 210, 446).—Reinhardt, Journ. für Orn., 1854, 438 (Greenland).—Taczanowski, Bull. Soc. Zool. France, 1883, 331.—Stearns, Bird Life in Labrador, ca. 1890, 45 (Labrador, nesting).—Nice, Bird-Banding, x, 1939, 128, in text (geogr. variability).

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pt. 1, 1931, 182, in text (Long Point area, Norfolk County, Ontario).—Taverner, Birds Canada, 1934, 144, in text (crit.).—Taverner and Sutton, Ann. Carnegie Mus., xxiii, 1934, 28, in text (Churchill, Manitoba; spec.).

Hierofalco gyrfalco Sharpe, Cat. Birds Brit. Mus., i, 1874, 416, part (Labrador).

Hierofalco gyrfalco gyrfalco Hantszch, Can. Field Nat., xlii, 1928, 17.

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(status in Minnesota).—Bailey, Brower, and Bishop, Progr. Activ. Chicago Acad. Sci., iv, No. 2, 1933, 23 (Point Barrow, Alaska).—DuMont, Nebraska Bird Rev., i, 1933, No. 2, 12, in text (spec., Elk Creek, Johnson County, Nebr.; first record for Nebraska; crit.; syn.).—Norton, Auk, l, 1933, 212 (near Colebrook, N. H.; Oct. 22, 1915).—Broun, Auk, lii, 1935, 243, 247; lvi, 1939, 437, in text (Hawk Mountain, Pa.; migr.).—Groebbels, Der Vögel, ii, 1937, 116, in text (nesting close to other birds).—Gross, Auk, liv, 1937, 21, in text (Hopedale, Labrador; probably nesting).—Prill, Wils. Bull., xlix, 1937, 119, in text (Scio, Oreg.; 2 records).—Wallace, Auk, liv, 1937, 548, in text (Milton, Vt., spec.).—Gromme, Auk, lv, 1938, 274, in text (Milwaukee, Wis.; spec.).—Witherby et al., Handbook British Birds, iii, 1939, 5, in text (footnote).—Gabrielson and Jewett, Birds Oregon, 1940, 199 (Oregon; rare straggler; only 3 records; descr.).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; accid.; 1 near Manhattan).—Sutton, Auk, lvii, 1940, 401, in text (Chenango County, N. Y.; spec.).—Bird, Ibis, 1941, 132, in text.—Cahalane, Auk, lxi, 1944, 363 (Alaska, Ugashik; specimen in U. S. Nat. Mus.).—Goodrich, Rept. Kansas State Board Agr., lxiv, No. 267, 1945, 181 (Kansas; only 1 record).—Haecker, Moser, and Swenk, Nebraska Bird Rev. xiii, 1945, 10 (Nebraska; accidental vis.; 1 record).—Soper, Auk, lxiii, 1946, 224 (Baffin Island).—Grayce, Auk, lxiv, 1947, 277 (Labrador; 1 seen July 13 at Saeylet Bay).—Todd and Friedmann, Wils. Bull., lix, 1947, 144 (plum., distr., crit.).

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Gyrfalco rusticolus obsoletus Snyder and Logier, Trans. Roy. Can. Inst., xviii, pt. 1, 1931, 182, in text.

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Falco cinereus Gmelin, Syst. Nat., i, 1788, 267.

Falco communis ζ *ater* Gmelin, Syst. Nat., i, 1788, 270 (part based on Edwards' Nat. Hist., pl. 4).

Falco candicans Gmelin, Syst. Nat., i, pt. 1, 1788, 275.—Daudin, Traité d'Orn., ii, 1800, 101.—Turton, Gen. Syst. Nat., i, 1806, 158.—Bewick, Isis, 1824, 882.—Schlegel, Abh. Geb. Zool., 1841, 14; Krit. Ueb., 1844, 1; Mus. Pays-Bas, Falcones, 1862, 7; Rev. Acc., 1873, 34.—Bonaparte, Rev. Zool., 1850, 484; Consp. Av., i, 1850, 23.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 278; *in* Baird's Birds North Amer., 1858, 13 (part; descr. supposed adult=young).—Strickland, Orn. Syn., i, 1855, 77.—Von Müller, Journ. für Orn., iv, 1856, 497.—Baird, Cat. North Amer. Birds, 1859, No. 11 (part).—Reinhardt, Ibis, 1861, 4 (Greenland).—Blasius, Journ. für Orn., x, 1862, 43.—Boardman, Proc. Boston Soc. Nat. Hist., ix, 1862, 122 (Maine).—Verreaux, Proc. Essex Inst., iii, 1862, 139.—Blakiston, Ibis, v, 1863, 43 (British America).—Pelzeln, Verh. z.-b. Ges Wien, xiii, 1863, 597.—Allan, Proc. Essex Inst., iv, 1864, 81; Amer. Nat., i, 1867, 40; iii, 1869, 513.—Newton, Oöth. Wolleyana, 1864, 85; editor Yarrell, i, 1871, 36; Proc. Acad. Nat. Sci. Philadelphia, xxiii, 1871, 95 (crit.).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 271, part (Alaska).—Gray, Hand-list, i, 1869, 18.—Harting, Proc. Zool. Soc. London, 1871,

112 (Disco Island).—Sharpe, Proc. Zool. Soc. London, 1873, 417, pl. 39.—Dresser, Orn. Misc., i, 1876, 190 (Labrador).—Feilden, Ibis, 1877, 403 (Cape Hayes; Cape Fraser; Cape Napoleon; Greenland).—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 501; Key North Amer. Birds, ed. 2, 1884, 533.—Bell, Rep. Prog. Geol. and Nat. Hist. Surv. and Mus. Canada, 1885 (1884), 54 (Port Burwell, Labrador; Aug. and Sept.).—Feilden, Trans. Norfolk and Norwich Nat. Soc., iv. 1887, 349 (Digges Island; Hudson Strait; West Digges Island; nesting).—Taylor, Wils. Bull., xlix, 1937, 86, in text (Greenland; winters).

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Falco (*Hierofalco*) *candicans* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, xxii, 1870, 140.

Falco (*Hierofalco*) *sacer*, a. var. *candicans* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 44.

Falco (*Hierofalco*) *gyrfalco*, var. *candicans* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 108, 111, fig. on p. 112, part (Greenland; Moose Factory; Hudson Bay Territory).

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1938, 11 (Michigan; 1 record).—Witherby et al., Handbook Brit. Birds, iii, 1939, 5, in text, 7, pl. 61 (monogr.; col. fig.; distr.).

Hierofalco gyrfalco candicans Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer Birds, 1881, No. 412.—Hantzsch, Journ. für Orn., lvi, 1908, 374 (Rama and Okak, Labrador, fall; status); Mitt. Ver. Erdk. Dresden, No. 8, 1909, 228 (ne. Labrador; transient).

Hierofalco candicans Cuvier, Règne Anim., i, 1817, 312; ed. 2, i, 1829, 323.—Lesson, Man. Orn., i, 1828, 80; Traité Orn., 1831, 97, pl. 16, part.—Bonaparte, Rev. Mag. Zool., 1854, 536, part.—Cassin, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 278.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 411 (Labrador; etc.).—Gurney, Ibis, 1882, 591–594 (crit.); List Diurn. Birds Prey, 1884, 112.—Reichenow, Die Vögel, i, 1913, 406.

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Falco sacer (not of Forster, Philos. Trans., lxxii, 1772, 383) Gmelin, Syst. Nat., i, pt. 2, 1788, 273, part.—Turton, Gen. Syst. Nat. i, 1806, 156.—Cassin, Illustr. Birds California, Texas, etc., 1856, 89.—Coues, Proc. Essex Inst., v, 1868, 254 (rare in winter in New England); Check-List North Amer. Birds, ed. 2, 1882, No. 498; Key North Amer. Birds, ed. 2, 1884, 532.—Allen, Amer. Nat., iii, 1869, 513 (Providence, R. I.; spec.).—Baird, Trans. Chicago Acad. Sci., i, pt. 2, 1869, 27 (Yukon and Mackenzie districts).—Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 271 (Alaska: Anderson River, Lower Mackenzie, and Yukon region; spec.).—Maynard, Proc. Boston Soc. Nat. Hist., xiv, 1872, 382 (New England).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 50 (Minnesota; spec.).—Vennor, Our Birds of Prey, 1876, 17, 23, pl. 4 (Bay of Seven Islands, Quebec; May).—Gibbs, U. S. Geol. and Geogr. Surv. Bull. 5, 1879, 490 (Michigan; winter).—Lawrence, Bull. Nuttall Orn. Club, v, 1880, 117 (Pond Quogue, Long Island).—Payne, Proc. Can. Inst., v, 1888, 180 (Prince of Wales Sound, Hudson Strait; September).

Falco (*Hierofalco*) *sacer* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, xxii, 1870, 140.

Falco (*Hierofalco*) *gyrfalco* var. *sacer* Ridgway, *in* Baird, Brewer, and Ridgway's Hist. North Amer. Birds, iii, 1874, 108, 115 (breeding in Anderson, Yukon, Mackenzie, and Severn River districts; numerous spec. in U. S. Nat. Mus.).

Falco gyrfalco sacer Purdie, Bull. Nuttall. Orn. Club, iv, 1879, 188 (Piscataquis County, Maine).

Hierofalco gyrfalco sacer Boucard, Cat., 1876, 2464 ("N. Am.").—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 192; Nom. North Amer. Birds, 1881, No. 412b.—Jencks, Random Notes Nat. Hist., i, No. 1, 1884, 6 (Point Judith, R. I.; cf. also Auk, i, 1884, 94).

Hierofalco sacer Cassin, Proc. Acad. Nat. Sci. Philadelphia, vi, 1883, 450 (Greenland; Labrador).

Hierofalco rusticolus sacer Oberholser, Auk, xli, 1924, 593 (syn.).

Falco islandus, γ *maculatus* Gmelin, Syst. Nat., i, pt. 2, 1788, 271.

? *Sacer americanus* Daudin, Traité d'Orn., ii, 1800, 97 (=*Falco sacer* Forster).

Falco groenlandicus Daudin, Traité d'Orn., ii, 1800, 157.—Turton, Gen. Syst. Nat., i, 1806, 147.—Hancock, Ann. Nat. Hist., ii, 1839, 249.—Blakiston, Ibis, 1863, 43 (Brit. America).

Falco gyrfalco groenlandicus Schlegel, Mus. Pays-Bas, Falcones, 1862, 13.

Falco lanarius (not of Gmelin) Faber, Isis, 1827, 68.

Falco labradora Audubon, Birds Amer., 1834, ii, pl. 196 (Labrador).—Burney, Ibis, 1882, 579–591–593.

Falco (*Hierofalco*) *labradorus* RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 140.

Falco (*Hierofalco*) *sacer* c. var. *labradora* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 44.

Falco (*Hierofalco*) *gyrfalco* var. *labradora* RIDGWAY, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 108, 117 (Rigolet, Fort Nascopie, Labrador; plum.).

Falco labradorus DRESSER, Proc. Zool. Soc. London, 1875, 115 (Fort Nascopie, Labrador; crit.); Orn. Misc., i, 1876, 185 (Fort Nascopie, Labrador; crit.).

Hierofalco gyrfalco var. *labradora* BOUCARD, Cat., 1876, 87, No. 2465 ("N. America").

Falco sacer var. *labradora* CORY, Bull. Nuttall Orn. Club, ii, 1877, 27 (Breels Island, Mass.).

Falco sacer labradorus VENNOR, Forest and Stream, xii, 1879, 406 (Montreal, Canada).

Falco rusticolus labradora BIRD, Ibis, 1941, 132, in text (crit.).

Hierofalco labradora BREWER, Proc. Boston Soc. Nat. Hist., xvii, 1875, 444.—GURNEY, List Diurn. Birds Prey, 1882, 111.—HANTSZCH, Can. Field Nat., xlii, 1928, 30 (ne. Labrador; trans.; colors).

Hierofalco labradorus HEINE and REICHENOW, Nom. Mus. Hein. Orn., 1886, 263 (Labrador).—MENZBIER and SUSHKIN, Ibis, 1903, 242 (plum.).

Falco arcticus HOLBOELL, Zeitschr. Ges. Naturw., iii, 1854, 426.—BLASIUS, Naumannia, 1857, 238; Nachtrag Naum. Vög. Deutschl., 1860, 19 (not pl. 390, fig. 2).—PALMER, Condor, xxx, 1928, 282, in text.

Falco dawsonis HALL, Can. Nat. and Geol., vii, 1862, 62 (Montreal, Canada; juvenal).

Falco holboelli SHARPE, Proc. Zool. Soc. London, 1873, 415 (s. Greenland).

Falco rusticolus holboelli SCHIØLER, Danmarks Fugle, iii, 1931, 361.—BIRD, Ibis, 1941, 132, in text (crit.).

Hierofalco holboelli SHARPE, Cat. Birds Brit. Mus., i, 1874, pl. 13 (adult and young).—GURNEY, Ibis, 1882, 587–591 (crit.).—BOUCARD, Cat., 1876, 87, No. 2462 (Greenland).—PALMER, Condor, xxx, 1928, 282, in text (patronymics).

Hierofalco islandus subspecies a. *holboelli* GURNEY, List Diurn. Birds Prey, 1884, 111.

FALCO RUSTICOLUS URALENSIS (Severtzov and Menzbier)

SIBERIAN GYRFALCON

Adult (sexes alike).—WHITE PHASE: Both barred and plain-tailed varieties present, indistinguishable from corresponding plumages of *Falco rusticolus obsoletus* except that the fourth primary (from the outside) is as long as, or longer than, the outermost one, while in *obsoletus* it is shorter than the outermost one.

Adult.—GRAY PHASE: Differs from that of *Falco rusticolus obsoletus* only in the same character as do the birds of the white phase.

Juvenal.—WHITE PHASE: Both barred and plain-tailed varieties differ from those of *Falco rusticolus obsoletus* only in the relative length of the fourth and the outermost primary, as in the adults.

Juvenal.—GRAY PHASE: Similar to the pale variety of the gray phase of *Falco rusticolus obsoletus*, but with the fourth primary equal

to, or longer than, the outermost one, and averaging more whitish below, the dark sepia streaks somewhat smaller; both uniform and spotted-backed individuals occur as in *obsoletus*. The dark variety of the young gray phase of the latter does not occur in the present subspecies.

Natal down.—Unknown.

Adult male.—Wing 349.2–361.9 (355.8); tail 203.2–238.7 (214.7); culmen from cere 22.8–23.3 (22.9); tarsus 58.4–63.5 (61.5); middle toe without claw 48.2–50.8 (50.0 mm.).[37]

Adult female.—Wing 383.5–419.1 (400.4); tail 233.8–266.7 (249.8); culmen from cere 24.1–27.9 (25.6); tarsus 57.1–67.3 (54.8); middle toe without claw 50–54.6 (52.8 mm.).[38]

Range.—Breeds in Arctic Eurasia from the Archangel district of northern Russia eastward across northern Siberia (Sagastyr, Lena Delta; Chuckche Peninsula; Ikauria; Chubukulach River) to Kamchatka, Bering Island, and Amurland, and to the Bering Sea coast of Alaska (Nulato, St. Michael, St. Lawrence Island, Nushagak, Norton Bay), intergrading in Alaska wth *obsoletus* (two birds from Fort Anderson, Northwest Territories, Canada, are more like *uralensis* than like *obsoletus!*).

Winters southward to the Ural Mountains and Amurland, Sakhalin, the Kurile Islands, Japan (Hokkaido), and probably to the Aleutian Islands as well, south to Washington. Occasional on St. Pauls Island and St. Georges Island, and Washington (Spokane).

Accidental in North Dakota (11 miles northeast of Wilton, December 15, 1940; specimen in U. S. Nat. Mus.)

Type locality.—Ural Mountains.

Falco gyrfalco Pallas, Zoogr. Rosso-Asiat., i, 1826, 324.—Bunge, Mel. Biol. Acad. Imp. Sci. St. Pétersbourg, xi, livr. 4, 1882, 592 (Sagastyr, Lena Delta, Siberia).

Falco sacer Dall and Bannister, Trans. Chicago Acad. Sci., i, pt. 2, 1869, 271 (Nulato, Alaska).—Coues, *in* Elliott's Rep. on Affairs in Alaska, 1875, 179 (St. Paul Island).

Hierofalco gyrfalco sacer Bean, Proc. U. S. Nat. Mus., v, 1882, 161 (Bering Sea, near St. Georges Island).

Falco gyrfalco var. *candicans* Schrenck, Reise Amurl., i, 1860, 228 (Amurland).

Falco candicans Dall and Bannister, Trans. Chicago Acad. Sci., i, 1869, 271, part (Alaska).—Saunders, Ibis, 1883, 350 (Bering Sea).

Falco (Hierofalco) gyrfalco var. *candicans* Ridgway, *in* Baird, Brewer, and Ridgway's Hist. North Amer. Birds, iii, 1874, 108, 111 part (Bering Straits; Ural Mountains).

Hierofalco gyrfalco candicans Nelson, Cruise *Corwin* in 1881, 1883, 77 (Bering Straits).

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[37] Eight specimens from Alaska, Bering Island, and Kamchatka.

[38] Fifteen specimens from Alaska and Bering Island.

Hierofalco=Falco candicans Pleske, Mem. Boston Soc. Nat. Hist., vi, 1928, 302, in part (n. Urals; Kara River; nests; Chubukulach River; Chuckche Peninsula; and Ikauria, Siberia).

Falco rusticolus candicans Stegmann, Journ. für Orn., lxxviii, 1930, 435 (Amurland).—Yamashina, Journ. für Orn., lxxix, 1931, 515 (Kurile Island).—Belopolski, Journ. für Orn., lxxxi, 1933, 421 (Anadyr region).

Hierofalco uralensis Severtzov and Menzbier, Orn. Geogr. Eur. Russia, 1882, i, 288, pl. 3 (Ural Mts.); Journ. für Orn., xi, 1883, 413 (transl. of orig. descr.).

Falco rusticolus uralensis Hartert, Vög. pal. Fauna, ii, 1913, 1069 (monogr.).—Koelz, Wils. Bull., xli, 1929, 208, in text (distr.; crit.).—Stegmann, Journ. für Orn., lxxviii, 1930, 435 (Amurland); lxxix, 1931, 214 (distr.; Siberian-Manchurian border); Faune U. R. S. S., Oiseaux, i, No. 5, Falconiformes, 1937, 56, 265 (crit.; distr.; descr.).—American Ornithologists' Union, ed. 4, 1931, 74.—Peters, Check-list Birds of World, i, 1931, 286.—Swarth, Pacific Coast Avif., No. 22, 1934, 25, in text (crit.).—Taverner, Birds Canada, 1934, 144, in text (Canada; distr.).—Friedmann, Bull. Chicago Acad. Sci., v, No. 3, 1935, 30 (Kodiak Island; spec.); Auk, lv, 1938, 290, in text (crit.; distr.).—Munro, Condor, xxxviii, 1936, 172, in text (Okanagan Valley, Brit. Columbia; spec.); Can. Journ. Res., D, xxiii, 1945, 56 (Cariboo Parklands, Brit. Columbia).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 15 (life hist.).—Bailey, Proc. Colorado Mus. Nat. Hist., xviii, No. 1, 1943, 90 (Cape Prince of Wales, Alaska; 2 specs.).—Brandt, Alaska Bird Trails, 1943, 359 (Hooper Bay region, Alaska; rare; 2 seen).—Todd and Friedmann, Wils. Bull., lix, 1947, 144, in text (Bering Sea coast, s. in winter to Washington).

Hierofalco grebnitzkii Severtzow, Nouv. Mém. Soc. Imp. Nat. Moscou, xv, livr. 3, 1885, 69 (Bering Island; Kamchatka).—Dementieff, Alauda, ser. 2, iii. 1931, 502 (crit.).

Falco gyrfalco grebnitzkii Bergman, Kenntn. Nordostasiat. Vög., 1935, 92, in text.

Falco rusticolus grebnitzkii Stegmann, Faune U. R. S. S., Oiseaux, ii, No. 5, Falconiformes, 1937, 265 (crit.; distr.; descr.).—Friedmann, Auk, lv, 1938, 290, in text (crit.; distr.).

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Subgenus Rhynchodon Nitzsch

Rather large, compactly built falcons (wing about 285–375 mm. in American species)[39] with much less than upper half of tarsus feathered in front, outer toe (without claw) extending to considerably beyond

[39] One Old World species (*F. minor* Bonaparte) sometimes has wing as short as 231 mm.

penultimate articulation of middle toe and much beyond end of inner toe, inner web of second primary (from outside) not emarginated, longest primary exceeding distal secondary by decidedly more than half the length of wing, tail decidedly less than half as long as wing, and with young conspicuously different in coloration from adults.

Bill moderately large, its depth at base of rhamphotheca about equal to its width at same point and slightly less than distance from cere (in front of nostril) to tip of maxilla; culmen (chord) about equal to length of hallux (without claw) or basal phalanx of middle toe, strongly decurved from base, distinctly but not sharply ridged; gonys moderately convex, ascending terminally, rather prominent basally, obviously but rather indistinctly ridged; maxillary tomium with "tooth" and sinuosities moderately developed; sides of maxilla somewhat swollen subterminally, the tip (unguis) rather abruptly compressed. Nostril relatively large, nearly circular. Wing long and pointed, the longest primary exceeding distal secondaries by decidedly more than half the length of wing; second or first and second primaries (from outside) longest, only the first (outermost) with inner web emarginated, the emargination a little beyond tip of fifth primary; only the second primary with outer web sinuated, the sinuation very slight. Tail decidedly less than half as long as wing, slightly but distinctly rounded, the rectrices (12) broad, and, especially the middle pair, tapering terminally. Tarsus a little more than one-seventh as long as wing, about as long as middle toe without claw or slightly longer, the feathered upper portion occupying decidedly less than half its length, elsewhere covered with small roundish scales, these smallest on planta tarsi, much larger along inner side of acrotarsium, where more transverse and disposed to form a more or less distinct longitudinal series; outer toe (without claw) extending to decidedly beyond penultimate articulation of middle toe and much beyond end of inner toe; hallux much longer than basal phalanx of middle toe, its claw slightly shorter than the digit.

Plumage and coloration.—Plumage compact, the primaries and rectrices very firm or rigid; orbital region completely and rather extensively bare. Adults (sexes essentially alike) with most of head, whole hindneck, and upper back plain black or slate-black; rest of upperparts barred with bluish gray and blackish; underparts buff to buffy white, the breast, sides, abdomen, etc., barred with dusky, the chin, throat, and sides of neck immaculate, the chest sometimes with guttate streaks or spots of dusky. Young dusky grayish brown above, the feathers margined with rusty, buffy, or whitish, the underparts broadly striped with dusky.

Range.—Nearly cosmopolitan. (Several species, but only one in America.)

FALCO PEREGRINUS ANATUM Bonaparte

DUCK HAWK

Adult male.—Forehead dirty warm buff; crown, occiput, nape, and anterior interscapulars deep neutral gray to dark neutral gray to blackish plumbeous; the bases of the feathers of the nape whitish or pale buffy, occasionally slightly visible; the interscapulars tipped and crossed by a single band of slate gray; posterior interscapulars, scapulars, back, rump, and upper tail coverts gull gray to deep gull gray, generally palest on the rump and upper tail coverts, and each feather with narrow blackish slate shafts and crossed by three or four fairly broad blackish slate bars; upper wing coverts slate narrowly

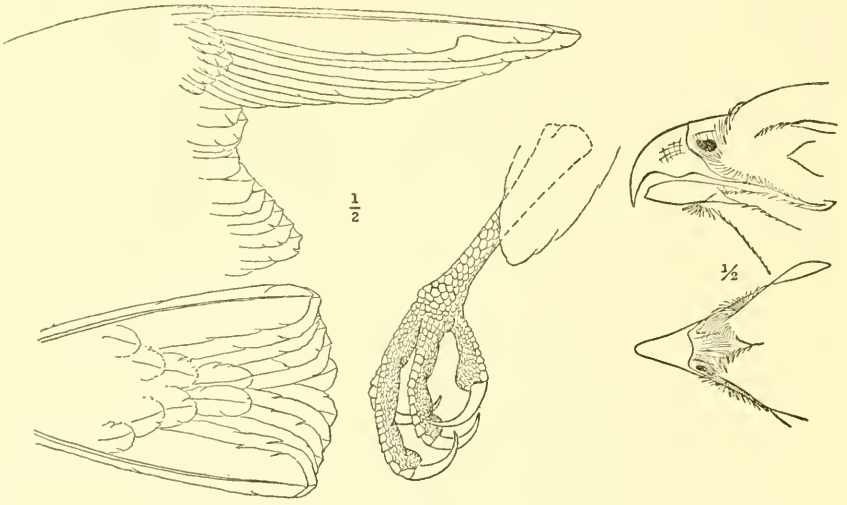

FIGURE 47.—*Falco* (*Rhynchodon*) *peregrinus*.

tipped with gull gray to pale gull gray, the greater coverts obscurely banded with slate gray; primaries slate black externally and terminally (for about one-fourth to one-third their length), the inner webs whitish to gull gray on their basal two-thirds to three-quarters, barred with slate black (about twelve to thirteen such bars on the outermost primaries; fewer on the more inner ones; the primaries (in fresh plumage) very narrowly tipped with whitish; secondaries slate gray to dark dull gray, paling to white on the inner webs, and barred (somewhat obscurely on the darker, outer webs) with dark slate; next to the outermost primary the longest, then the outermost, then the third from the outside, the outermost one abruptly indented on the inner web about 40–50 mm. from the tip; rectrices light neutral gray to slate gray, tipped with dirty whitish; paling on the inner margin of the inner webs of the lateral feathers to dirty whitish, and crossed by eleven or twelve bars of blackish slate, the bars narrow toward

the base of the tail, and becoming broader distally, the subterminal one, broadest (about 12–15 mm.); lores like forehead, but separated from the eyes by a narrow blackish or plumbeous-black circumocular ring which merges dorsally insensibly into the dark crown, and is continuous with the cheeks and a broad malar stripe on either side of the upper throat (mustachial stripe of some authors), and with the auriculars; the area between the malar stripe and the auriculars is very variable, being whitish in some specimens, grayish in others, and plumbeous-black, completely destroying the distinctness of the malar stripe from the auriculars in others (irrespective of age, season, or geography); chin and throat white often tinged with ashy or tilleul buff or cartridge buff; breast the same, but some of the feathers with very faint, very narrow, shaft streaks of blackish, and the lower breast with a few somewhat rounded spots of blackish; abdomen, sides, flanks, thighs, and under tail coverts creamy white to cartridge buffy transversely spotted or narrowly barred with blackish, the bars best formed and most pronounced on the sides, flanks, and thighs, slightly paler and less prominent on the under tail coverts, generally broken into spots on the abdomen proper; in some cases the lower median part of the abdomen almost immaculate; under wing coverts white barred narrowly with black, the white interspaces (as on the thighs, flanks, etc.) much wider than the dark bars; cere, bare orbital space, tarsi, and toes bright king's yellow; iris very dark brown; bill pale bluish, the culmen darker, the tip blackish.[40]

Adult female.—Similar to the adult male, but usually somewhat more tinged with light ochraceous-buff below; the buffy whitish bases of the nape feathers more often visible; the breast more spotted, even on the anterior part of the breast, the abdomen, sides, flanks, thighs, and under tail coverts more heavily barred with black, the bars deeper, wider, and more numerous; and the light area on the inner webs of the primaries lightly tinged with very pale ochraceous-buff, size larger.

Juvenal male.—Entire top of head, upperparts of body, upper wing and tail coverts, remiges and rectrices fuscous to chaetura black, the forehead tinged with ashy buffy, the nape feathers very broadly edged with light ochraceous-buff (the fuscous reduced to a broad median stripe), the feathers of the body and the wing and tail coverts tipped and edged narrowly with ochraceous-buff to whitish, the remiges and rectrices tipped with whitish; primaries as in adult, but with fewer dark bars (7 or 8) on the pale portion of the inner web, the bars wider and generally fusing at the inner margin of the feathers, the pale area much washed with pale ochraceous-buff to pinkish

[40] In some specimens the entire underparts are washed with light ochraceous-buff.

buff; secondaries fuscous to chaetura black like the back and scapulars, the inner webs with five or six incomplete bars of pale ochraceous-buff to pinkish buff, these bars not reaching the shaft; rectrices very dark hair brown to fuscous or chaetura black, crossed by five or six interrupted bars (really a pair of transverse spots, one on each web, that on the inner web usually longer and reaching the margin of the feather on the inner web) of ashy vinaceous-buff, these marks ashy, not buffy, and often indistinct or even wanting, on the median pair of rectrices; chin and upper throat pale buffy white to warm buff; malar stripe, cheeks, and auriculars as in adult; lower throat, breast, and abdomen pale ochraceous-buff to cinnamon-buff, each feather with a very broad median stripe of dark sepia to fuscous-black; feathers of the sides, flanks, and thighs with the dark shaft stripes and with two bars and a subterminal wedge-shaped spot of the same; under tail coverts pale ochraceous-buff to dirty whitish barred with fuscous; under wing coverts very pale pinkish buff to pale cinnamon-buff heavily spotted and barred with fuscous-black; iris dark brown; bare orbits and cere livid bluish; bill bluish, darker at tip; tarsi and toes pale bluish, claws black.

Juvenal female.—Like the juvenal male, but the forehead, crown, occiput, and nape feathers edged with tawny to ochraceous-buff; the margins of the feathers of the upperparts slightly more ferruginous; the entire underparts more heavily washed with cinnamon.

Natal down.—Pure white, sometimes with a faint creamy or cartridge buff cast.

Adult male.—Wing 301–327 (314.2); tail 138–154 (145.1); culmen from cere 18–21 (19.6); tarsus 46–54 (50.6); middle toe without claw 45–52 (47.5 mm.).[41]

Adult female.—Wing 340–376 (356.3); tail 167–192 (178.9); culmen from cere 20–25 (23.4); tarsus 50–57 (54.4); middle toe without claw 50–60 (53.9 mm.).[42]

Range.—Breeds from northern Alaska (Point Barrow, Point Martin, Icy Cape, Sand Point, Nulato, Fort Yukon, Admiralty Islands (?)); northern Mackenzie (above lat. 58° N. on Mackenzie River); Northwest Territories (Hudson Bay, Southampton Island; Chesterfield); Ungava (Fort Chimo); Somerset Island; Baffin Island; west-central Greenland (Godthaab, Angmagsalik, Holsteinberg); Labrador and Newfoundland Labrador (Doane, Pamiarluk, Okkak, Cape Chidley, Nain; Makkovik, Davis Strait); Newfoundland; New Brunswick; and Nova Scotia; south throughout Alaska (except the Aleutian

[41] Twenty specimens from western Greenland, New York, New Jersey, Alberta, Alaska, and one from Jamaica.

[42] Twenty-two specimens from Alaska, Alberta, Ungava, Montana, New York, New Jersey, Georgia, and Mexico.

Islands); Canada (except the Queen Charlotte Islands); and the United States to as far as southern Baja California (chiefly along the coast; San Carlos; San Quintín; San Roque Island; Ildefonso Island; Consag Rock; San Luis Island; Los Coronados; San Gerónimo; San Benito, and Natividad Islands; Cedros, Todos Santos); northwestern and north-central Mexico (Mazatlán, Sinaloa, Tres Marías Islands, Venado Island); southwestern Texas (Chisos Mountains); Kansas (Neosho Falls); Arkansas (rare breeder; Little Red River, Cleburne County); Missouri (Blackport, Gasconade River, near Leavenworth, Alton, Grafton, New Haven); Tennessee; southern Illinois (Mount Carmel, lower Wabash River); Indiana; Pennsylvania (Delaware and Susquehanna Rivers, Lancaster and Bradford Counties); and New Jersey; and in the mountains through West Virginia to eastern Tennessee, and to South Carolina (Pickens County) and Georgia (Dade County).

Winters from Vancouver Island (Comox); Washington (rare); and California; Colorado; southern Nebraska; Iowa (scarce); southern Illinois and Indiana; southern Ontario; Pennsylvania; New York (Long Island); New Jersey; Massachusetts (Suffolk, Hampshire, and Barnstable Counties; scarce); and New Brunswick (Grand Manan) south throughout the United States, to southern Florida, the Bahamas (Normans Key; New Providence; Watling; Great Inagua); Cuba; Isle of Pines; Jamaica; Navassa; Hispaniola; Puerto Rico (rare; Cartagena Lagoon; Joyuda; Anegado Lagoon; Boqueroin); St. Croix; Salt Island; Virgin Gorda; St. Bartholomew; Anguilla; Barbuda; Antigua; St. Lucia; Barbados; St. Vincent; the Grenadines; and through Mexico; Guatemala (Dueñas); Honduras (Swan Island, Bay of Honduras); El Salvador (Acajutla); Panama (Santiago de Veraguas; Changuinola) throughout South America from Colombia (Honda); Venezuela and Trinidad (Port-of-Spain; Seelet); Ecuador (El Muerto Island, Pichincha, Puntilla de Santa Elena, Pomasqui, Chaupicruz, Quito; throughout the year); Brazil (Matto Grosso, São Paulo); Uruguay; Paraguay (Puerto Bertoni); to Argentina (Lomas de Zamora, Córdoba, La Rioja, Rosas); and Chile (Aconcagua, Santiago, Isla La Mocha, Cautín, Ranco, Temúco, Valdivia).

In migration to Bermuda occasionally.

Accidental in England (Newbold Verdon near Market Bosworth, Leicestershire; Humberstone, Lincolnshire).

Type locality.—Great Egg Harbor, N. J.

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text (Whitefish Point, Mich.).—Anonymous, El Horneo, vi, 1935, 193 (distr.).—Broun, Auk, lii, 1935, 243, 247 (Hawk Mountain, Pa.; migr. 1934), 320, in text (Tavernier, Fla.; 1 seen); lvi, 1939, 437, in text (Hawk Mountain, Pa.; migr.).—Friedmann, Chicago Acad. Sci., Bull. 5, No. 3, 1935, 30 (Kodiak Island; spec.).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Veraguas and Changuinola, Panama).—Hendricks, Auk, lii, 1935, 446, in text (Great Barrington, Mass.; nesting bird attacks people).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 136, in text (se. Wyoming; trans.; dates).—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 57 (San Juan Islands, Wash.; nest. record).—Allen and Peterson, Auk, liii, 1936, 403, in text (Cape May County, N. J.; 1 migr.).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 26, in text.—Bellrose, Auk, liii, 1936, 348, in text (La Salle County, Ill.; 1 seen).—Bond, Birds West Indies, 1936, 78, 79, in text (West Indies; distr.; migr.; not uncommon winter vis.; descr.), 414 (migr.); Condor, xxxviii, 1936, 72, in text (food and feeding habits), 119, in text (molting descr.), 178, in text (live weights of 6 birds), 217, in text (Santa Barbara, Calif.; food habits); xli, 1939, 57, in text (Tule Lake region, Calif.; food habits); Check List Birds West Indies, 1940, 26 (West Indies; rare winter vis.; distr.; not believed to breed); ed. 2, 1945, 25 (rare winter vis.); Condor, xlviii, 1946, 101, in text (breeding distr. in w. North America).—Dalgety, Ibis, 1936, 583 (Jakobshaven, Greenland; 1 spec.).—Hudson and Sherman, Auk, liii, 1936, 311, in text (Caesars Head, S. C.; seen).—Imler, Trans. Kansas Acad. Sci., xxxix, 1936, 300 (Rooks County, Kans.; spec.).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 46 (Nevada; 2 records, 1 sight).—Nichols, Auk, liii, 1936, 348, in text (Craig, Fla.; 1 seen).—Peters, Bird-Banding, vii, 1936, 13 (N. H., S. Carolina, Illinois; ext. parasites).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 481 (Argentine rec.; distr.; syn.).—Ulke, Can. Alpine Journ., 1934–35 (1936), 79 (Yoho Park, Canada; summer; common).—Alexander, Univ. Colorado Stud., xxiv, 1937, 91 (Boulder County, Colo.; rare or infrequent trans.).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 157 (Connecticut Valley, Mass.; habits).—Gross, Auk, liv, 1937, 22, in text (Eclipse Harbor, Labrador; 1 seen; Gannet Islands; nesting).—Hickey, Bird-Banding, viii, 1937, 98, in text (mentioned); Auk, lix, 1942, 176, in text (population in Eastern States).—Murphey, Contr. Charleston Museum, ix, 1937, 14 (Savannah Valley, Ga.; rare but reg. winter vis.).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 25 (Brewster County, Tex.; 4 sight records).—Wolfe, Condor, xxxix, 1937, 225, in text (Walker Lake, Nev.; eggs Apr. 3, 1910).—Bennett, Blue-winged Teal, 1938, 35, in text (Puerto Rico; winter; feed on water fowl).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 43 (life hist.).—Compton, Univ. California Publ. Zool., xlii, 1938, 176, 187 (pterylosis).—MacLulich, Contr. Roy. Ontario Mus. Zool., No. 13, 1938, 10 (Algonquin Prov. Park, Ontario; few nest. pairs; breed. records).—Pereyra, Mem. Jardin Zool. La Plata, ix, pt. 2, 1938, 61 (ne. Prov. Buenos Aires, common).—Pinto, Rev. Mus. Paulista, xxii, 1938, 90 (distr.).—Pitts, Auk, lv, 1938, 552, in text (North Carolina; 3 records).—Van Tyne, Occ. Pap. Mus. Zool. Univ. Michigan, No. 379, 1938, 11 (Michigan; rare trans.; nest. record).—Cowan, Occ. Pap. Brit. Columbia Prov. Mus., No. 1, 1939, 25 (Peace River district, British Columbia; 3 records).—Cruickshank, Auk, lvi, 1939, 474, in text (Long Island, N. Y.; eating carrion); Birds around New York City, 1942, 146 (New York City region).—Niedrach and Rockwell, Birds of Denver and Mountain Parks, 1939, 57 (not common migr.; habits).—Pettingill,

Proc. Nova Scotian Inst. Sci., xix, 1937–38 (1939), 332 (Grand Manan; trans.; 2 specs.; formerly bred).—Winsatt, Auk, lvi, 1939, 181, in text (Maryland Heights, Md.; nesting); lvii, 1940, 107, in text (Towanda, Pa.; homing and egg-laying), 109, in text (across from Harpers Ferry, W. Va., in Maryland; nesting).—Aldrich, Condor, xlii, 1940, 90, in text (Crater Lake, Oreg.; young).—Campbell, Bull. Toledo Mus. Sci., i, 1940, 59 (Lucas County, Ohio; uncommon trans.; habits).—Dear, Trans. Roy. Can. Inst., xxiii, pt. 1, 1940, 126 (Thunder Bay, Lake Superior, Ontario; very rare summer res.; 1 breed. record only).—Dugand, Rev. Acad. Colombia, iii, 1940, 221 (Magdalena-Caribbean area, Colombia; in dry period).—Hanna, Condor, xlii, 1940, 166, in text, 167, in text (color pattern).—Howard, Auk, lvii, 1940, 530, in text (as goose predator).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; formerly common res.; now rare).—Trautman, Misc. Publ. Univ. Michigan Mus. Zool., No. 44, 1940, 220 (Buckeye Lake, Ohio; very rare spring and fall trans.; food).—Zotta, El Hornero, vii, 1940, 404 (food habits in Argentina).—Goodpaster, Journ. Cincinnati Soc. Nat. Hist., xxii, 1941, 12 (sw. Ohio; 2 specs.; taken in 1883 and 1940).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 117 (Cajutuba, Lower Amazonia).—Stabler, Auk, lviii, 1941, 560 (used in parasite experiment).—Bezdek, Auk, lix, 1942, 306, in text (Ohio records).—Dixon, Condor, xliv, 1942, 54 (Humphrey Point and Herschel Island, Arctic Alaska).—Stevenson, Condor, xliv, 1942, 110 (c. Panhandle of Texas).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 382 (Uinta Basin, Utah).—Behle, Bull. Univ. Utah, xxxiv, 1943, 24 (Washington County, sw. Utah); Condor, xlvi, 1944, 71 (Utah; rare summer res.).—Brandt, Alaska Bird Trails, 1943, 360 (Hooper Bay region, Alaska; rather rare).—Bray, Auk, lx, 1943, 515 (Southampton Island, Baffin Island, Melville Peninsula).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 361 (Gulf coast of Mississippi; common in winter on all islands).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 109 (California; permanent res.; fairly common).—Hill, Auk, lxi, 1944, 230 (meas. and sex dimorphism), 231 (meas.).—Hochbaum, Canvasback on Prairie Marsh, 1944, 178 (mentioned).—Allard, Auk, lxii, 1945, 145 (Virginia; mountains along Valley of Virginia; nesting).—Borrero, Caldasia, iii, 1945, 412 (Colombia; not common; mid-Oct. to Mar.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 181 (Kansas; seldom seen).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds Georgia, 1945, 35 (Georgia; rare winter).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 10 (Nebraska; rare migr. and winter vis.).—Loomis, Auk, lxii, 1945, 237 (Newfoundland and Labrador).—Packard, Auk, lxii, 1945, 375 (Rocky Mountain National Park, Colo.).—Preble, Auk, lxii, 1945, 456 (Ashland County, Ohio).—Woodbury and Russell, Bull. Univ. Utah, xxxv, 1945, 41 ("Navaho Country," se. Utah and ne. Arizona; casual breeder).—Barnes, Auk, lxiii, 1946, 322 (Mona Island, Puerto Rico).—Clark, Auk, lxiii, 1946, 594 (Ohio).—Niedrach, Auk, lxiii, 1946, 253 (Colorado; nesting).—Palmer and Taber, Auk, lxiii, 1946, 304 (Mt. Katahdin region, Maine).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., i, No. 10, 1947, 199 (Idaho).—Grayce, Auk, lxiv, 1947, 277 (Labrador; pair nested July 16 on island near Maine).—Groskin, Auk, lxiv, 1947, 312 (breeding on city buildings; May 1943 nested on top of hotel New York City; June 6, 1949, City Hall tower, Philadelphia).

Falco pergrinus anatum Swarth, Pacific Coast Avif., No. 4, 1904, 7 (Huachuca Mountains, Ariz.; rare migr.).

Falco Peregrinus prope *anatum* Kleinschmidt, Berajah, 1927, 112 (Mexico).

Falco anatum anatum GRINNELL and DAGGETT, Auk, xx, 1903, 33 (Coronados Islands).

Rhynchodon peregrinus anatum OBERHOLSER, Auk, xxxv, 1918, 207.—BAILEY, Birds of Florida, 1925, 72, pl. 38 (col. fig.; distr.; Florida).—SIMMONS, Birds Austin Region, 1925, 106 (Austin, Tex.; habits; etc.).—SUTTON, Birds Pennsylvania, 1928, 65 (descr.; status; habits); Wils. Bull., xl, 1928, 84, in text (Schuylkill County, Pa.; migr.; food); xli, 1929, 41, in text (Dauphin, Pa.; habits).—[ARTHUR], Birds Louisiana, 1931, 208 (descr.; status in Louisiana).—OBERHOLSER, Bird Life Louisiana, 1938, 182 (Louisiana; rare in winter; no breeding records).

Falco cassini (not of Sharpe) HOLMBERG, Act. Acad. Nac. Cordova, v, 1884, 76 (Sierra de la Tinta, Argentina).—TACZANOWSKI, Orn. Peru, i, 1884, 147 (Peru and French Guiana).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. London, 1892, 388 (Lima, Peru).

Falco peregrinus cassini PENARD, Auk, xliv, 1927, 419 (Surinam).

Falco nigriceps CASSIN, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 450 (nw. America); Illustr. Birds Calif., Texas, etc., 1854, 87 (California); Birds Gilliss Exped., ii, 1855, 176, pl. 14 (Chile; spec.); Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 277 (Shoalwater Bay, Washington; crit.); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 8; ed. 1860, pl. 11.—STRICKLAND, Orn. Syn., i, 1855, 85.—BAIRD, Cat. North Amer. Birds, 1859, No. 6.—HENRY, Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 105 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 142, pl. 11 (Shoalwater Bay and Steilacoom, Wash.).—COUES, Ibis, 1866, 267 (s. California).—BROWN, Ibis, 1868, 418 (Vancouver Island).—GRAY, Hand-list, i, 1869, 19, No. 166.—COOPER, Orn. California, Land Birds, 1870, 456.—SHARPE, Ann. Mag. Nat. Hist., ser. 4, xi, 1873 (p. 3 of reprint) (California to Vancouver Island; crit.).—GRINNELL, Univ. California Publ. Zool., xxxviii, 1932, 267 (type locality; crit.).

Falco communis (not of Gmelin) POEY, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).—PELZELN, Reis. *Novara*, Vög., i, pt. 2, 1865, 8 (Santiago, Chile); Orn. Bras., Abth. 1, 1868, 5; Abth. 4, 1870, 397.—COUES, Key North Amer. Birds, 1872, 214; Check List Birds North America, 1873, No. 343; Amer. Nat., viii, 1874, 598 (e. Montana, breeding).—RIDGWAY, Bull. Essex. Inst., v, 1873, 185 (Colorado; rocky places near water).—SHARPE, Ann. Mag. Nat. Hist., ser. 4, xi, 1873, 222 (crit.); Cat. Birds Brit. Mus., i, 1874, 376, in part (Labrador; Vancouver Island; Mexico; St. Nevis).—BOIES, Cat. Birds Southern Michigan, 1875, No. 133 (s. Michigan; summer).—GIBBS, U. S. Geol. and Geogr. Surv. Bull. 5, No. 3, 1879, 490 (Michigan; irreg.).—CORY, Birds Bahama Islands, 1880, 129 (Normans Key, Jan.).—KNOWLTON, Bull. Nuttall Orn. Club, v, 1880, 57 (Brandon, Vt.; breeding).—REID, U. S. Nat. Mus. Bull. 25, 1884, 219 (Bermuda; sev. records).—BERISTAIN and LAURENCIO, Mem. y. Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico).

Falco communis americanus [sic] SCHLEGEL, Abd. Geb. Zool. Vergl. Anat., Heft 3, 1843, 19 (substitute name for *F. anatum* Bonaparte).

Falco orientalis (not of Gmelin) GRAY, Hand-list, i, 1869, 19, No. 165, part.

?*Falco pegrerinus* (sic) *Cassini* BARROS, Rev. Chilena Hist. Nat., xxv, 1921, 176 (Los Andes, Aconcagua; Nov.).

Falco peregrinus var. *nigriceps* LAWRENCE and GRAYSON, Proc. Boston Soc. Nat. Hist., xiv, 1872, 268 (Tres Marías Islands, Tepic).

Falco (*Falco*) *nigriceps* GOODE, U. S. Nat. Mus. Bull. 20, 1883, 320.

Falco Peregrinus nigriceps KLEINSCHMIDT, Berajah, 1927, 113 (California; descr., etc.).

Falco peregrinus subsp. STAGER, Condor, xliii, 1941, 137, in text (Texas; eating bats).

FALCO PEREGRINUS HARTERTI Buturlin [43]

SIBERIAN PEREGRINE FALCON

Adults.—Similar to *F. p. anatum* but with the dark mustachial stripe much narrower, leaving a conspicuous white stripe between it and the dark dorsal surface of the neck, this white stripe reaching quite close to the eye (about 20 mm. from it).[44]

Juvenal.—Very similar to that of the North American race *F. p. anatum*, but on the average with more white on the cheeks, leaving the mustachial stripe narrow as in the adults; the feathers of the upperparts with rust brown edgings.

Natal down.—Not known.

Adult male.—Wing 293–315 (306.5); tail 135–144 (139.5); culmen from cere 18.8–19.5 (19.2); tarsus 49.6–52.1 (50.7); middle toe without claw 45.9–48.8 (47.3 mm.).[45]

Adult female.—Wing 344–371 (353.7); tail 167–176 (173); culmen from cere 23.2–24.3 (23.8); tarsus 51.8–55.7 (54.1); middle toe without claw 53.9–54.2 (54 mm.).[45]

Range.—Breeds in Jakutsk and northeastern Siberia from the Lena River to the Kolyma and (?) to the Chuckchee Peninsula. Winters southward across Asia to the southeastern part of the continent (birds seen from Siam that agree very closely with the single Alaskan record)

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[43] Stresemann (Ibis, 1949, 253, 255) has produced evidence that the name of this race may have to be changed to *Falco peregrinus japonensis* Gmelin, based on *Falco japonensis* Gmelin, Syst. Nat., i, pt. 1, 1788, 257 (in insulis Japan—off the coast of Japan).

[44] This race seems to be quite variable, judging by literature. Stegmann (Journ. für Orn., lxxxii, 1934, 228–230) describes the adult as being darker above than in the nominate form (or *anatum*), but states that in the northern part of its range *harterti* tends to be much lighter in coloration. Inasmuch as this subspecies is included in the North American avifauna on the basis of a single record, it does not seem necessary to go into great detail (nor is adequate material available on which to base a thorough study). Anyone interested in studying the Asiatic forms of the duck hawk may well begin with Stegmann's paper referred to above, as well as Steinbacher's Ergänzungsband to Hartert's Vög. pal. Fauna, Heft 5, 1936, pp. 396–399.

In a general way it may be said that *F. p. harterti* is a fairly dark form, becoming pale in the northern parts of its range, where it varies toward *F. p. caeruleiceps* Stegmann, and darker in the southeastern part of its range, where it approaches *F. p. rudolfi* Kleinschmidt.

The single North American record is one of the pale northern examples (which being atypical do not agree closely with a general diagnosis of the race to which they belong).

[45] Four male specimens from India and Sumatra. Three female specimens from India and Sumatra.

and to the Indo-Australian area. Accidental in Alaska (Seward Peninsula, near Cape Prince of Wales).

Type locality.—Lower Lena to the Anadyr.

? *Falco ardearius* P. L. S. Müller, Natursystem, ii, 1773, 76.

? *Falco orientalis* Gmelin, Syst. Nat., i, 1788, 264 (habitat in Japonica; ex Latham, Gen. Syn. Birds, i, pt. 1, 34* (not p. 34 without asterisk) No. 7c.

? [*Falco*] *calidus* Latham, Index Orn., i, 1790, 41 (India; ex Latham, Gen. Syn. Birds, i, pt. 1, 35, no. 112 "Behree Falcon").

Falco peregrinus calidus Hartert, Vög. pal. Fauna, ii, 1913, 1046, part (monogr.).—(?) von Jordans, Journ. für Orn., lxxiii, 1925, 448 (Novaya Zemlya).—Peters, Check-list Birds of World, i, 1931, 288, part.—(?) Yamashima, Journ. für Orn., lxxix, 1931, 515 (Kurile Islands).—Stegmann, Journ. für Orn., lxxxii, 1934, 224 in text, part.—Swann, Monogr. Birds Prey, pt. 14, 1936, 385, part (monogr.).—Witherby et al, Handbook Brit. Birds, iii, 1939, 12, 13, 15, in text (distr.).—Hanna, Condor, xlii, 1940, 166 (Seward Peninsula, Alaska, near Cape Prince of Wales, May 25, 1939; also 3 eggs, June 12, 1935, Cape Mountain, Alaska ?); Auk, lvii, 1940, 589, in text (Cape Prince of Wales, Alaska).—Bailey, Proc. Colorado Mus. Nat. Hist., xviii, 1943, 90 (Cape Prince of Wales, Alaska; 1 specimen).—American Ornithologists' Union, Auk, lxii, 1945, 439 (nomencl.).

? *Falco lunulatus* Daudin, Traité d'Orn., ii, 1800, 122 (new name for *F. calidus* Latham).

Falco peregrinus ussuriensis Buturlin, Psov. i Ruzejn. Okhota, xiii, No. 7, 1907, 100 (Ussuriland and Japan; based on 3 old specimens).

Falco peregrinus harterti Buturlin, Psov. i Ruzejn. Okhota, xiii, No. 7, 1907, 100 (lower Lena to Anadyr, possibly to Kolyma); Messager Ornithologique, ii, 1911, 58 in text (Kolyma).—Hartert, Nov. Zool., xxii, 1915, 169 (lower Lena to Anadyr; common on the Kolyma; type seen and considered to be not separable from *calidus* Latham).—Grote, Falco (Sonderheft), 1925, 177, in text (e. Siberia).—Belopolski, Journ. für Orn., lxxxi, 1933, 421 (Anadyr area).—Stegmann, Journ. für Orn., lxxxii, 1934, 228 (crit.; distr.); Faune U. R. S. S. Oixeaux, i, No. 5, 1937, 79, 269 (crit.; distr.).—Bergman, Kenntnis Nordostasiat. Vög., 1935, 89 (Kamchatka.).—Steinbacher, Vög. pal. Fauna, Ergänzungsband, 1936, 398 (crit.; descr.; distr.).

Falco harterti Buturlin, Journ. für Orn., lvi, 1908, 287, 291 (endemic in Jakutsk Province).

Falco peregrinus peregrinus Pleske, Mem. Boston Soc. Nat. Hist., vi, No. 3, 1928, 305, part (Siberian coast from mouth of Lena to Yana, Indigirka, and Kolyma).

Falco peregrinus Bunge, Mel. Biol. Bull. Acad. Imp. Sci. St. Pétersbourg, xi, livr. 4, 1882, 593 (Lena Delta, Siberia).

Falco peregrinus pleskei Dementiev, Falco, xxix, 1933 (Jan. 1934), 13 (Bolschoi Schantar Island, Okhotsk Sea).

Falco peregrinus kleinschmidti Dementiev, L'Oiseaux, new ser., iv., 1934, 480 (Olekminsk; crit.).

Falco peregrinus leucogenys Buturlin and Dementiev, L'Oiseaux, new ser., iii, 1933, 458, part.

Falco leucogenys Hartert, Nov. Zool., xxv, 1918, 42 (type spec. in Brehm coll. = *F. p. calidus*).

Falco Blancheti Lavaudin, Rev. Franc. Orn., vii, 1922, 212.

FALCO PEREGRINUS PEALEI Ridgway

PEALE'S FALCON

Adult male.—Similar to that of *Falco peregrinus anatum*, the top of head usually not darker than the interscapulars (often slightly more dusky in *anatum*); the lower throat and breast generally with small tear-shaped spots of fuscous-black, these spots being the subterminal enlargement of narrow dusky shaft streaks (one specimen, from Forrester Island, Alaska, with the throat and breast immaculate as in *anatum*); and the abdomen, sides, flanks, thighs, and under tail coverts more broadly and more darkly barred.

Adult female.—Like that of *Falco peregrinus anatum*, but much more heavily barred on the abdomen, sides, flanks, thighs, and under tail and under wing coverts; the breast and the lower throat heavily spotted fuscous to fuscous-black, the spots ranging in width from 3 mm. (narrow, elongate spots) to 11 mm. (broad, transverse spots). Above blackish plumbeous, uniform anteriorly, becoming barred posteriorly with light bluish plumbeous, the bars of which are very obscure on the wings and back, but on the rump and tail coverts are broader than the blackish ones; tail blackish plumbeous, narrowly tipped with white, and crossed with about 9 narrow bars, which are obscure, and bluish plumbeous, on the outer webs, and sharply defined, and tinged with cream color on the inner webs; primaries uniform plumbeous-black on their outer webs; inner webs with transverse ovoid spots of creamy white, 14 on the outer quill; head uniform, continuous plumbeous-black, except on the throat, and a small space on the middle of the auriculars, the former being dull white, streaked with black, and the latter obsoletely streaked and suffused with whitish; lower parts white, tinged with cream color on the breast, and with ashy blue on the tibiae; the entire surface, including the lining of the wings and tibiae, heavily barred transversely with black; on the breast and lining of the wing the bars of black and white are of about equal width; posteriorly, however, the black bars grow gradually narrower, and become also of a more plumbeous tint; on the jugulum the markings are longitudinal, inclining to a tear-shaped form; bill dark horn blue; cere apparently similar; "eye brown"; tarsi and toes dark yellow; claws blue-black.

Juvenal (sexes alike).—Similar to that of *Falco peregrinus anatum*, but the top of head with very little fulvous or buff, dark like the back; the nuchal collar very poorly developed; the margins of the feathers of the upperparts less ochraceous, more pale fulvous; underparts very much darker due to the great increase in breadth of the chaetura black streaks, which also extend up into the throat, the streaks so broad on the abdomen, sides, flanks, and thighs as to reduce the buffy white areas to narrow marginal borders, these edges less ochraceous than in

anatum—almost white to buffy white; under tail coverts very broadly banded with chaetura black, the pale interspaces narrower than the dark bands.

Natal down.—Unknown.

Adult male.—Wing 305–340 (329); tail 158–161 (159); culmen from cere 50–52 (50.7); tarsus 46–52 (49.1); middle toe without claw 47–49 (48 mm.).[46]

Adult female.—Wing 356–377 (369.4); tail 188–196 (192.7); culmen from cere 24–26 (25); tarsus 54–62 (57.7); middle toe without claw 54–58 (56.3 mm.).[47]

Range.—Breeds from the Aleutian Islands and the islands off the coast of southern Alaska (Kyska; Unalaska; Sitka (?); the "nearer islands," i. e., the western ones of the Aleutian Chain; Sergief Island; Forrester Island; occasionally found on St. George Island, in the Pribilof group) south to the Queen Charlotte Islands (Graham Island, Langara Island).[48]

Winters from the Queen Charlotte Islands and Metlakatla, Vancouver, southwestern British Columbia (Chilliwak, and Porcher Island in migration), south to coastal Washington (Carroll Islet); and coastal Oregon (Yaquina Bay, Netarts Bay); casually to California (Pacific Grove, San Diego Bay).

Type locality.—Sitka, Alaska, and Oregon.

Falco polyagrus, part, Cassin, Illustr. Birds California, Texas, etc., 1854, pl. 16, dark-colored fig. (Oregon).

Falco communis pealei Ridgway, Bull. Essex Inst., v, 1873, 201 (Oregon; coll. U. S. Nat. Mus.); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 137 (Oregon; Sitka, Alaska).—Coues, Check List North Amer. Birds, 1873, 133, No. 343a.—Goode, U. S. Nat. Mus. Bull. 20, 1883, 320.

Falco peregrinus pealei Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 192; Nom. North Amer. Birds, 1881, No. 414a); Ibis, 1882, 297, footnote (Kiska Harbor, Aleutian Islands; descr. adult female); Man. North Amer. Birds, 1887, 248; Condor, xxviii, 1926, 240 (type spec.; crit.).—Nelson, Cruise *Corwin* in 1881 (1883), 78 (Unalaska Island, Alaska).—Turner, Auk, ii, 1885, 157 ("Nearer Islands," Aleutian Chain).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 356a; ed. 3, 1910, 165; ed. 4, 1931, 75.—Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 1893, 40 (Vancouver, Brit. Columbia; Nisqually?).—Bishop, North Amer. Fauna, No. 21, 1900, 75 (at sea, s. of Aleutian Islands, Oct. 7).—Osgood, North Amer. Fauna, No. 21, 1901, 43 (Hecate Strait, Queen Charlotte Islands, July 2).—Bailey, Handb. Birds Western United States, 1902, 168 (w. United States; descr.; distr.).—Woodcock, Oregon Agr. Exp. Stat.

[46] Seven specimens from Alaska and Queen Charlotte Islands.

[47] Nine specimens from Alaska and Queen Charlotte Islands.

[48] The birds breeding in the Commander Islands, usually called *pealei*, are a different race for which the name *Falco rudolfi* Kleinschmidt (Falco, ix, 1909, 19) seems to be available. They have the pectoral spots, especially in the female, very much broader than in *pealei*.

Bull. 68, 1902, 35 (Yaquina Bay, Oreg.).—McGregor, Condor, viii, 1906, 120 (Egg Island, etc., Aleutians.)—Dawson and Bowles, Birds of Washington, ii., 1909, 531 (Washington; habits; distr.).—Jones, Wils. Bull., xxi, 1909, 15 (Carroll Inlet, Wash., breeding.)—Kermode, Prov. Mus. Victoria, 1909, 45 (Vancouver Island and coast of mainland; British Columbia; Cadboro Bay, near Victoria; Chilliwack; Mekalatka).—Clark, Proc. U. S. Nat. Mus., xxxviii, 1910, 58, part (Aleutian Islands).—Hartert, Vög. pal. Fauna, ii, 1913, 1043, part (monogr.), 1048, part (Aleutian Islands to Oregon); Nov. Zool., xxii, 1915, 175, part (crit.).—Green, Ibis, 1916, 473–476 (range and nesting habits.).—Swann, Synopt. List Accip., pt. 4, 1920, 122; Synop. Accip., pt. 4, 1922, 199.—Swarth, Univ. California Publ. Zool., xxiv, 1922, 214 (Sergief Island, s. Alaska, Sept. 1; crit.); Condor, xxxv, 1933, 233, in text (San Diego, Calif.; spec.; descr.).—Brooks, Auk, xl, 1923, 221 (Porcher Island, Brit. Columbia; res.); Condor, xxviii, 1926, 77, in text (stat.; range; crit.).—Preble and McAtee, North Amer. Fauna, No. 46, 1923, 83 (St. George Island, Pribilofs, Mar. 12, 1914, and Jan. 13, 1917).—Stresemann, Journ. für Orn., lxxii, 1924, 438 (tax.; distr.).—Bailey, Condor, xxviii, 1926, 114 (Unalaska); Auk, xliv, 1927, 204 (Forrester Island, se. Alaska; breeding).—Taverner, Birds Western Canada, 1926, 208, in text (range, etc.); Birds Canada, 1934, 146, in text (Canada; genl.).—Walker, Condor, xxviii, 1926, 182 (Netarts Bay, Oreg.).—Kleinschmidt, Berajah, 1927, 114 (monogr.).—Gabrielson, Jewett, and Braly, Murrelet, xi, 1930, 12 (Oregon; coast; 1 record).—Kitchin, Murrelet, xi, 1930, 72, in text (Westport, Wash.).—Cumming, Murrelet, xii, 1931, 16 (Queen Charlotte Islands, Brit. Columbia); xiii, 1932, 7 (Vancouver, Brit. Columbia; rare migr.).—Peters, Check-list Birds of World, i, 1931, 290.—Yamashina, Journ. für Orn., lxxix, 1931, 515 (Kurile Islands).—Bergman, Kenntn. Nordostasiat. Vög., 1935, 216 (Kurile Islands; spec. (?)).—Laing, Auk, lii, 1935, 307, in text.—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 63 (San Juan Islands, Wash.; hypothetical list).—Friedmann, Condor, xxxviii, 1936, 173, in text (Alaska; distr.; crit.).—McLean, Condor, xxxviii, 1936, 16, in text (Sonoma County, Calif.; spec.).—Groebbels, Der Vögel, ii, 1937, 116, in text (Aleutians; nesting close to eider ducks).—Stegmann, Faune U. R. S. S., Oiseaux, i, No. 5, Falconiformes, 1937, 80, 269, in part (Aleutians and s. Alaska to Oregon).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 67 (life hist.).—Cottam and Knappen, Auk, lvi, 1939, 15, in text (Oregon and Alaska; food habits; 7 specimens).—Edson, Murrelet, xx, 1939, 22, in text (Bellingham, Wash.).—Gabrielson and Jewett, Birds Oregon, 1940, 203 (Oregon; reg. winter res. on coast; descr.; distr.; habits).—Gabrielson, Auk, lxi, 1944, 121 (Alaska; 1 bird seen on Chagulak and 3 on Kasatochi).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 109 (California; rare winter vagrant).—Hill, Auk, lxi, 1944, 230, 231 (meas.).—Munro, Can. Journ. Res., D, xxiii, 1945, 56 (Cariboo Parklands, Brit. Columbia; crit.).—Bond, Condor, xlviii, 1946, 102, in text (breeding range).—Pearse, Murrelet, xxvii, 1946, 6 (Comox, Vancouver Island; decreased to rarity).

Falco peregrinus pealii Coues, Check List North American Birds, ed. 2, 1882, No. 504; Key North Amer. Birds, ed. 2, 1884, 536.

Falco peregrinus Subspecies a. *pealei* Gurney, List Diurn. Birds Prey, 1884, 106.

Falco pealei Stejneger, U. S. Nat. Mus. Bull. 29, 1885, 206, part (Aleutians).—Gurney, Cat. Birds Prey, 1894, 29, part.—Sharpe, Hand-list, i, 1899, 273, part (Alaska to Oregon).

Rhynchodon peregrinus pealei Oberholser, Auk, xxxv, 1918, 207.

Falco peregrinus Munro, Can. Journ. Res., D, xxiii, 1945, 56 (Cariboo Parklands, Brit. Columbia; occas.).

Falco gyrfalco (not of Linnaeus) Dall, Proc. California Acad. Sci., 1874, 3 (Kiska Island, Aleutians; habits).—Ridgway, Amer. Nat., viii, 1874, 434 (Kiska Harbor; descr. adult female).

Subgenus Neofalco Ridgway

Small to medium-sized falcons (wing about 180–250 mm.) similar in structural details to *Falco*, but with nostril relatively much smaller, tarsus with less than upper third feathered in front, tip of tail truncate or slightly emarginate (instead of rounded), and coloration of young not materially different from that of adults.

Bill moderate in size, its depth at rhamphotheca about equal to its width at same point and very nearly equal to distance from anterior margin of cere (in front of nostril) to tip of maxilla; culmen strongly decurved from base, distinctly but not sharply ridged; gonys slightly convex, ascending terminally, obviously, but not distinctly, ridged (in *F. albigularis*) or broad and smoothly rounded (*F. deiroleucus*); maxillary tomium with "tooth" and sinuosities moderately developed, the mandibular tomium with subterminal notch relatively very large; sides of maxilla swollen subterminally, the tip (unguis) rather abruptly contracted or compressed. Nostril relatively small, circular. Wing long and pointed, the longest primary exceeding distal secondaries by much more than half the length of wing; second primary (from outside) longest, the first (outermost) much longer than third; outermost primary, only, with inner web emarginated, the emargination between tips of fourth and fifth primaries; second primary, only, with outer web slightly sinuated. Tail decidedly less than half as long as wing, truncate or even slightly emarginated, the rectrices (12) very rigid, relatively rather narrow, the middle pair slightly tapering terminally. Tarsus decidedly longer than middle toe without claw (*F. albigularis*) to decidedly shorter (*F. deiroleucus*), with less than one-third of its upper portion feathered in front only, covered elsewhere with small roundish or hexagonal scales, these largest on inner side of acrotarsium, smallest on planta tarsi; outer toe, without claw, reaching to slightly beyond penultimate articulation of middle toe and much beyond end of inner toe; hallux, without claw, about as long as basal phalanx of middle toe, its claw nearly as long as the digit.

Plumage and coloration.—Plumage compact, the primaries and rectrices (especially the latter) rigid; orbital region bare to a much less extent than in *Falco*. Adults (sexes alike in coloration) with head (except chin and throat) and upperparts black, the feathers of rump, upper tail coverts, scapulars, and wing coverts more or less distinctly margined terminally with slate-gray, the tail with transverse

spots or interrupted bars of slate-gray or white; chin, throat, sides of neck and foreneck immaculate white, buff, or light ochraceous; breast, upper abdomen, sides, flanks, under wing coverts, and axillars black barred or spotted with white, buffy or tawny; lower abdomen, thighs, and under tail coverts chestnut; inner webs of primaries with transverse white spots. Young feathers of upperparts more or less distinctly margined with rusty or brownish, instead of slate-gray and (at least in *F. deiroleucus*) lower abdomen, thighs, and under tail coverts, ochraceous or buffy with large transverse spots (more or less cordate or crescentic) of blackish.

Range.—Continental Tropical America. (Two species.)

FALCO DEIROLEUCUS Temminck

Temminck's Falcon

Adult (sexes alike in color).—Entire top of head, nape, scapulars, interscapulars, back, rump, upper wing and tail coverts blackish plumbeous; the feathers margined with paler, dark plumbeous, the margins narrower and somewhat tinged with brownish on the feathers of the crown and occiput and, especially, the upper wing coverts, the margins broadest on the scapulars, lower back, rump, and upper tail coverts; upper tail coverts crossed by two grayish white bands on their (usually) concealed basal two-thirds; remiges dull black, unmarked on their outer webs, the inner webs with approximately 8 transverse spots of very pale ochraceous-buff, the spots touching neither the shaft nor the edge of the feather, these spots becoming smaller and disappearing on the inner secondaries; outer secondaries with conspicuous white tips, the other remiges very narrowly tipped with whitish, which quickly wears off; only the outermost primary incised on its inner web; the second (from outside) the longest, then the outermost, third, fourth, et cetera; rectrices dull black narrowly tipped with white and crossed by five very narrow and very incomplete bands of dusky white, these bands consisting of transverse bars which touch neither the shaft nor the edges of the feathers; lores, cheeks, and auriculars black with a plumbeous sheen; chin and middle of upper throat pure white; sides of throat, lower throat, and breast bright ochraceous-tawny to pale cinnamon; upper abdomen, sides, flanks, and under wing coverts black barred with ochraceous-tawny and pale buff to warm buff; the under wing coverts with no ochraceous and with the pale marks almost white; lower abdomen and thighs deep bright hazel; under tail coverts black broadly tipped and broadly banded (3 bands) with pale ochraceous-buff to pale warm buff; iris dark brown; cere said to be pale yellowish; bill pale yellowish becoming plumbeous terminally; tarsi and toes bright yellow; claws black.

Juvenal (sexes alike).—Upperparts as in adult, but the feathers with the margins dull tawny instead of dark plumbeous, the margins practically wanting on the head and nape; remiges as in adult, but the inner webs washed with fuscous; tail as in adult; chin and upper throat with a faint buff wash; lower throat and breast heavily washed with very pale cinnamon, which darkens posteriorly to pale cinnamon, the feathers of the breast with conspicuous, terminally broadening black shaft stripes; upper abdomen, sides, flanks, and under wing coverts as in adult, but with the pale bars narrower and therefore

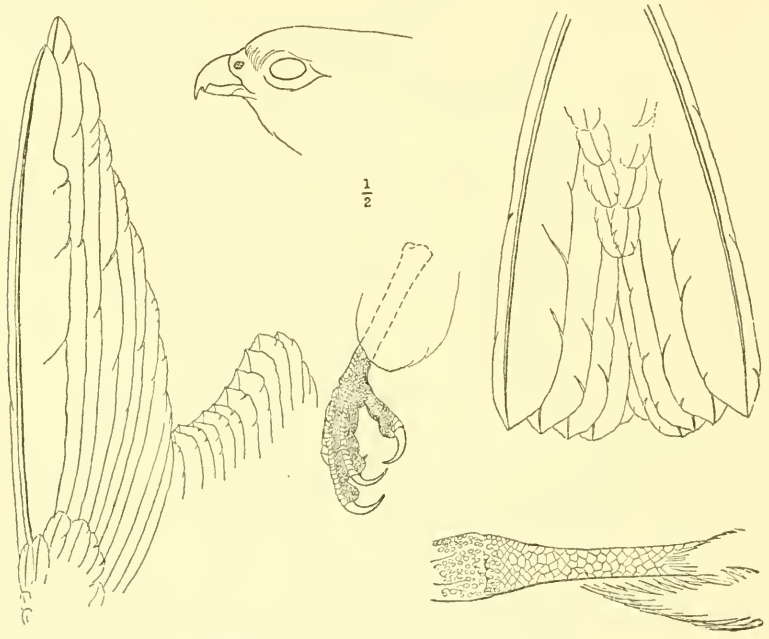

FIGURE 48.—*Falco* (*Neofalco*) *albigularis*.

less conspicuous; lower abdomen pale tawny buff with broad wedge-shaped blackish shaft streaks; thighs pale tawny-buff barred with blackish; under tail coverts as in adult, but the pale bars pale warm buff, not ochraceous buff.

Natal down.—Apparently unknown.

Adult male.—Wing 248; tail 128; culmen from cere 18; tarsus 43; middle toe without claw 46 mm. (1 specimen from Costa Rica).

Adult female.—Wing 275–287 (281.2); tail 139–141 (140); culmen from cere 21.5–23.5 (22.5); tarsus 47–56 (49.5); middle toe without claw 48–50 (49 mm.) (4 specimens from Peru, Venezuela, and without locality).

Range.—Resident from southern Mexico (Tecolutla, Veracruz); south through Guatemala (Vera Paz, Finca el Ciprés); Nicaragua

(Matagalpa); Costa Rica (La Palma de San José); Panama (Bugaba; Chiriquí); Colombia; Venezuela (San Esteban; Mérida); Trinidad; Dutch Guiana; French Guiana (Cayenne); British Guiana (Demerara); Brazil (Bahia, Pará, Linha Pirajá, Rio Grande do Sul, Santarém, São Paulo, Isla São Francisca, Paranaguá, Piauhy, Cantagallo); and Ecuador (Santo Domingo, Gualaquiza, San José, Paramba); to Peru (Pampa Jesús, Perico); Paraguay; and northern Argentina (Tucumán, Biza de la Paz, Pampas). Apparently nowhere numerous.

Type locality.—Isla São Francisca, Santa Catarina, Brazil.

(?) *Falco aurantius* Gmelin, Syst. Nat., i, pt. 1, 1788, 283 (Surinam; based on *Orange-breasted Hobby*, Latham, Synopsis Birds, i, pt. 1, 1781, 105).—Latham, Index Orn., i, 1790, 48.—Daudin, Traité d'Orn., ii, 1800, 130 (Surinam).—Temminick, Cat. Syst., 1807, 10.—Shaw, Gen. Zool., vii, pt. 1, 1809, 194.—Cuvier, Règne Anim., ed. 2, i, 1829, 322.—Lesson, Traité d'Orn., 1831, 91.

(?) *Falco* ? *aurantius* Stephens, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 40 (South America).

Falco aurantius Strickland, Orn. Syn., i, 1855, 89.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 140; Proc. Boston Soc. Nat. Hist., xvi, 1873, 45 (Brazil); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 129.—Leótaud, Ois. Trinidad, 1866, 20.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 402 (Bahia, Brazil; Demerara, Brit. Guiana; Guatemala), 460 (Venezuela); Hand-list, i, 1899, 275.—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Costa Rica).—Lillo, Bol. Ofic. Química Tucumán, ii, 1889, 78 (Tucumán); Anal. Mus. Nac. Buenos Aires, viii, 1902, 205 (Tucumán); Rev. Letras y Cienc. Soc., iii, 1905, 63 (Tucumán).—Carriker, Ann. Carnegie Mus., vi, 1910, 470 (La Palma de San José, Costa Rica).—Bertoni, Anal. Soc. Cient. Argentina, lxxv, 1913, 80 (Misiones, Argentina.)—Reichenow, Die Vögel. i, 1913, 408.

Hypotriorchis aurantius Kaup, Ueb. Falk. Mus. Senckenb., 1845, 257.—Bonaparte, Consp. Gen. Av., i, 1850, 25, part; Rev. Mag. Zool., vi, 1854, 535.—Gray, Hand-list, i, 1869, 21, No. 185.—Berlepsch, Nov. Zool., xv, 1908, 294 (Cayenne).—Dabbene, Orn. Argent., 1910, 249 (Tucumán).

Falco deiroleucus Temminck, Planches Col., i, 1825, pl. 348 and text (ad. female figured; Brazil).—Lesson, Man. d'Orn., i, 1828, 79.—Gray, List Spec. Brit. Mus., 1844, 25.—Schlegel, Mus. Pays-Bas, Falcones, 1862, 24.—Sclater and Salvin, Proc. Zool. Soc. London, 1868, 629 (San Esteban, Venezuela); Nom. Av. Neotr., 1873, 121.—Layard, Ibis, 1873, 394 (Pará, Brazil).—Taczanowski, Proc. Zool. Soc. London, 1874, 550 (Pampa Jesús, Peru); Orn. Pérou, i, 1884, 149.—Berlepsch and Ihering, Zeitschr. Orn., 1885, 171 (Linha Pirajá, Rio Grande do Sul, s. Brazil; crit.).—Ridgway, Man. North Amer. Birds, 1887, 248.—Riker, Auk, viii, 1891, 161 (Santarém, Brazil).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 72 (Trinidad); lv, 1926, 240 (Ecuador).—Koenigswald, Journ. für Orn., 1896, 385 (São Paulo, s. Brazil).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 117, pl. 66 (Vera Paz, Guatemala; Matagalpa, Nicaragua; La Palma de San José, Costa Rica; Bugaba; Panama; South America to Venezuela; Guiana, and Brazil).—Reiser, Denkw. Mat.-Nat Akad. Wiss. Wien, 1910, 91 (Paranaguá, ne. Brazil).—Brabourne and Chubb, Birds South Amer., i, 1912, 73.—Dabbene, Bol. Soc. Physis Buenos Aires, i, 1913, 304 (Tucumán, Argentina).—Chubb, Birds Brit. Guiana, i, 1916, 278 (habits).—Bangs and Noble, Auk, xxxv, 1918, 445 (Perico, Peru).—Swann, Synopt. List

Accip., pt. 4, 1920, 138; Auk, xxxviii, 1921, 364 (near Mérida, Venezuela); Synop. Accip., pt. 4, 1922, 191.—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 455 (Piauhy, Brazil; crit.).—Peters, Check-list Birds of World, i, 1931, 291.—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 164 (Guatemala; Finca el Cipres); Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Panama: Chiriquí, Veraguas).—Belcher and Smooker, Ibis, 1934, 594 (Trinidad; rare).—Roberts, Trop. Agr., xi, No. 4, 1934, 6 (Trinidad).—Steullet and Deautier, Obra Cincuentenario Mus. La Plata, i, 1936, 483 (Argentine records, distr., and syn.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 90 (distr.; Brazil); Arquivos Zool. Est. São Paulo, xi, 1940, 13 (Cuiabá, Matto Grosso; spec.).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 118 (Lower Amazonia; Santarém; spec.).—Lehmann, Caldasia, ii, No. 7, 1943, 190 (spec. Purificación, Tolima, Guaicaramo, Boyaca, La Esperanza, Magdalena, Moscopán, Cauca; all Colombia).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 29 (no basis for old published record from Sonora).

Falco deiroleucos Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 24, footnote (monogr.).

Hypotriorchis deiroleucus Bonaparte, Rev. Mag. Zool., vi, 1854, 535.—Salvin, Ibis, 1861, 354 (Vera Paz, Guatemala); Proc. Zool. Soc. London, 1870, 215 (Bugaba, Veraguas, Panama).—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1868, 134 (La Palma de San José, Costa Rica).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Pelzeln, Orn. Bras., Abth. 4, 1870, 397.—Cabanis, Journ. für Orn., 1874, 229 (Brazil).—Gurney, Ibis, 1882, 159, in text (crit.); List Diurn. Birds Prey, 1884, 103; Cat. Birds Prey, 1894, 29.

Falco peregrinus deiroleucus Stresemann, Journ. für Orn., lxxii, 1924, 438 (tax.; distr.).

Falco peregrinus ? deiroleucus Kleinschmidt, Berajah, 1927, 116 (monogr.).

Falco rufigularis (not of Daudin) Gray, List Spec. Brit. Mus., 1844, 54.

Hypotriorchis rufigularis (type error) Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252 (San Esteban, Venezuela).

(?) *Falco punctipennis* Burmeister, Journ. für Orn., 1860, 242 (Biza de la Paz, Pampas Argentina).

Falco albigularis (not of Daudin) Hartert, Nov. Zool., v, 1898, 501 (Paramba, Ecuador).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 31 (Gualaquiza; San José, Ecuador).—Goodfellow, Ibis, 1902, 222 (Santo Domingo, Ecuador).

Hypotriorchis melanogyne Bertoni, An. Cien. Paraguayos, i, 1901, 168 (Puerto Bertoni, Alto Paraná, Paraguay).

F[alco] cassini (not of Sharpe) Hartert, Vög. pal. Fauna, ii, 1913, 1049, in text (young; Ecuador).

FALCO ALBIGULARIS ALBIGULARIS Daudin

Central American White-throated Falcon

Adult (sexes alike in coloration).—Forehead, crown, occiput, nape, lores, cheeks, and auriculars dark slate black, the feathers very faintly paler at the tips; the cheeks and auriculars usually darker than crown; scapulars, interscapulars, lesser and median upper wing coverts, back, rump, and upper tail coverts with a bluish slate cast, the feathers with dark slate-black shafts and mediobasal areas; in

some the shaft streak very broad almost restricting the slate color to a mere broad margin as in the upper wing coverts; in others, as the scapulars and upper back feathers, the darker tone is a narrow median streak; the rump feathers and the upper tail coverts transversely very broadly barred with large spots of slate-black; greater upper wing coverts, remiges, and rectrices slate-black, the secondaries and inner primaries narrowly tipped with slate; the primaries becoming brownish, almost fuscous along the outer margin of the inner web, all the remiges with from 6 to 10 short, incomplete, equally spaced, white bars on the inner web; the second primary from the outside the longest, then the outermost, then the third one; rectrices with 5 to 7 incomplete, narrow, equally spaced, whitish bars, these bars becoming slate gray on the median pair and somewhat clouded with slate gray on the outer webs of the next pair or two (occasional specimens almost lack these bars on the outer webs of the lateral pairs), and, in fresh plumage, the rectrices are narrowly tipped with grayish white; tail slightly emarginated, the second and third (from outside) rectrices the longest; chin and throat and a narrow dorsolateral extension on either side behind the auriculars whitish, sometimes only very slightly tinged with cartridge buff, but usually washed with light ochraceous-buff or cinnamon-buff, this color generally more pronounced on the lower throat than on the chin or upper throat, but occasionally the entire area from chin to breast is almost uniformly light ochraceous-buff; breast and upper abdomen, sides and flanks black, each feather tipped narrowly with white to gull gray, sometimes washed with hazel, and crossed by one or two narrow bars of generally purer white, the tips and bars more whitish on the anterior pectoral area and more grayish or rufescent grayish on the posterior abdominal and lateral areas; rest of abdomen, thighs, and under tail coverts uniform deep hazel to deep cinnamon-rufous; under wing coverts dull black with small round white to pale ochraceous-buff spots, the ochraceous color usually best developed on those coverts lying close to the bend of the wing; cere and bare orbital region greenish yellow; iris very dark brown; bill black except for the base of the lower mandible which is yellowish; tarsi and toes bright chrome yellow to lemon yellow; claws black.[49]

Juvenal (sexes alike).—Very similar to the adult, but the upperparts dull dark slate-black without any slate or bluish slate margins or cast; the lores buffy to pale ochraceous, the breast and upper abdomen with a fuscous wash, the transverse bars heavily washed with hazel; lower abdomen and thighs very slightly paler hazel than in

[49] Females present no constant color characters by which they may be told from males, but they average a very slightly more slate color on the crown and occiput, and tend to have six or seven, instead of five or six, narrow white bars on the rectrices, but these characters are both subject to exceptions.

adults; under tail coverts with transverse spots to actual bars of slate black.

Natal down.—Apparently unknown.

Adult male.—Wing 173–197 (189.1); tail 88–102 (95); culmen from cere 11.5–12.5 (12.1); tarsus 32–36 (33.6); middle toe without claw 28–31 (29.7 mm.).[50]

Adult female.—Wing 209–229 (220); tail 103–118 (111.7); culmen from cere 13–15 (13.9); tarsus 35–39 (36.5); middle toe without claw 32–35 (33.8 mm.).[51]

Range.—Resident in the tropical and subtropical zones from north-central Mexico (Tamaulipas—Altamira, Tampico; Nuevo León; Nayarit—San Blas, Tres Marías Islands; Veracruz—Achotal, Orizaba, Mirador, Playa Vicente; Oaxaca—La Parada, Santa Efigenia, Tapanatepec, Cacoprieto, Tapana, Tehuantepec; Yucatán—Mérida, Chichen Itzá; Xcopén and Camp Mengel, Quintana Roo; Campeche—La Tuxpeña); Guatemala (Petén—Laguna Perdida; Patulul; Mazatenango; Hacienda California; Panajachel; Finca el Ciprés); Honduras (La Ceiba; Truxillo; Lancetilla; Ruatan Island; Río Blanco; Santa Ana; Segovia River); British Honduras (Manatee Lagoon, near Belize); Nicaragua (Río Escondido); Costa Rica (Barba Heredía; San Lucas; Talamanca; La Palma de San José; Pozo Azul de Pirris; San José; Cerro de Santa María; El General de Térraba; Los Cuadros de Irazú; Guácimo; Cuabre de Talamanca; Miravalles; El Pozo de Térraba); Panama (Calovébora; Cordillera de Toli; Volcán de Chiriquí; Santa Fé de Veraguas; Punta de Sabana; Bay of Panama; Cabima; Changuinola; Permé; Obaldía; Jesucito); south through Colombia (Río Frío; Bonda; Cincinnati; Mamatoco; La Manuelita, La Palmas; Florencia; La Concepción; Bogotá; Neche); Trinidad and Venezuela (San Sebastián; San Julián; Río Negro; Caicara; Río Cataniapo; Puerto Samora); British Guiana (Demerara; Roraima; Bartica; Upper Takutu Mountains; the Ituribisi, Supenaam, Kamakabra, Bonasika, Curubung, and Essequebo Rivers; Kamakusa; Corentyne Coast; Wakenaam Island); Dutch Guiana (Paramaribo); French Guiana (Cayenne); Brazil (Diamantina; Pará; Bahia; Counany; Piauhy—Ibiapaba; Goyaz—Philadelphia, lower Rio Tocantins, Guardamor; Rio Negro; Rio Purus—Bom Lugar; Rio Jamauchim—Maria Vilhas; Rio Juruá; Paranaguá; Santarém; Rio Capim; Óbidos; Rio de Janeiro—Sapitiba; Minas Gerais; São Paulo—Franca, Avanhandava, Iguape, Pôrto do Rio Paraná; Mato Grosso—Chapada, Caiçara, Mato Grosso, Rio Guaporé); Ecuador (Paramba;

[50] Eleven specimens from Mexico, Guatemala, British Honduras, Honduras, Panama, Venezuela, and British Guiana.

[51] Eighteen specimens from Mexico, Honduras, British Honduras, Guatemala, Costa Rica, Venezuela, and Colombia.

Gualaquiza; San José; Santo Domingo; Mindo; Chimbo); Peru (Pébas; Huambo); Bolivia (Charuplaya); Paraguay (Sapucay; Colonia Risso; upper Río Paraná); and northern Argentina (lower Río Pilcomayo; Tucumán; Formosa; Chaco—Mocovi).

Type locality.—Cayenne.

Falco aurantius β Latham, Index Orn., i, 1790, 48 (white-throated plumage).

Falco aurantius γ Latham, Index Orn., i, 1790, 48 (ochraceous-throated plumage).

Falco aurantius (not of Gmelin) Lichtenstein, Verz. Doubl., 1823, 61 (Pará, Brazil; Cayenne.)—Burmeister, Syst. Übers. Th. Bras., ii, 1856, 98.—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 10.—Baird, Rep. U. S. and Mex. Bound. Surv., ii, 1859, 3 (Nuevo León).—Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 24 (monogr.); No. 36, livr. 10, 1873, 40.—Elliot, Illustr. New and Unfig. North Amer. Birds, ii, pt. 2, 1868, pl. 32 and text.—Boucard, Liste Ois. récol. Guat., 1878, 20.—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 170 (Mexico; common names).—Beristain and Laurencio, Mem. y Rev. de la Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; listed).—Bertoni, Anal. Sci. Parag., 1907 [11].

Falco (*Hypotriorchis*) *aurantius* Bertoni, Fauna Paraguaya, 1914, 43 (upper Rio Paraná).

Bidens aurantius Spix, Av. Bras., i, 1824, 17 (Rio Negro).

Hypotriorchis aurantius Bonaparte, Consp. Gen. Av., i, 1850, 25, part.—Baird Cat. North Amer. Birds, 1859, No. 8.—Lawrence, Ann. Lyc. Nat. Hist. New York, ix, 1869, 207 (Mérida, Yucatán).

Falco albigularis Daudin, Traité d'Orn., ii, 1800, 131 (white-throated plumage; based on *Falco aurantius* β Latham, Index Orn., i, 1790, 48).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 401 (Brazil; Rio Tocantins; Pebas, e. Peru; Demerara, British Guiana; Trinidad; Bay of Panama); Hand-list, i, 1899, 275.—Ridgway, Man. North Amer. Birds, 1887, 249; Proc. U. S. Nat. Mus., x, 1888, 583 (Truxillo, Honduras), 592 (Río Segovia, Honduras).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (La Palma de San José and Pozo Azul de Pirris, Costa Rica).—Cherrie, Auk, ix, 1892, 327 (San José, Costa Rica).—Kerr, Ibis, 1892, 142 (lower Río Pilcomayo, Argentina).—Richmond, Proc. U. S. Nat. Mus., xvi, 1893, 520 (Río Escondido, Nicaragua; habits); xviii, 1896, 628 (Altamira, Tamaulipas).—Beristain and Laurencio, Mem. y Rev. de la Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; listed).—Hartert, Nov. Zool., v, 1898, 501 (Paramba, nw. Ecuador, 3,500 feet).—Holmberg, Segundo Censo Argent., 1898, 508.—Ihering, Rev. Mus. Paulista, iii, 1899, 366 (São Paulo, s. Brazil); iv, 1900, 272 (descr. eggs); vi, 1904, 339 (Paraguay), 450 (Rio Juruá, Amazonia).—Salvadori and Festa, Boll. Mus. Zool. Torino, xv, 1900, 31 (Gualaquiza and San José, eastern Ecuador).—Goodfellow, Ibis, 1902, 222 (Santo Domingo, western Ecuador; color of cere and feet).—Cole, Bull. Mus. Comp. Zool., l, 1906, 122 (Chichen Itzá, Yucatán).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 83 (Patulul and Mazatenango, Guatemala.)—Ihering and Ihering, Av. Brazil, 1907, 99 (Rio de Janeiro; São Paulo; Matto Grosso; Rio Tocantins; Pará Bahia; Minas Gerais).—Penard and Penard, Vög. Guyana, i, 1908, 433 (Surinam).—Carriker, Ann. Carnegie Mus., vi, 1910, 469 (Cerro de Santa María, El General de Térraba, Los Cuadros de Irazú, Guácimo, Cuabre de Talamanca, Miravalles, and El Pozo de Térraba, Costa Rica; habits).—Chubb, Ibis, 1910, 74 (Sapucay, Paraguay; fresh colors of unfeathered parts).—Reiser, Denkw. Mat.-Nat. Akad. Wiss.

Wien, 1910, 91 (Paranaguá, etc., ne. Brazil).—Peters, Auk, xxx, 1913, 371 (Xcopan and Camp Mengel, Quintana Roo).—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone; Tors Point; spec.; colors).—Bangs and Barbour, Bull. Mus. Comp. Zool., lxv, 1922, 194 (Jesucito; Darién; crit.; supposed geographic forms not tenable!).—Stresemann, Journ. für Orn., lxxii, 1924, 437, 438 (considers it the North American representative of *F. subbuteo*).—Chapman, Bull. Amer. Mus. Nat. Hist., lv, 1926, 240 (Ecuador; no spec.).—Griscom, Amer. Mus. Nov., No. 235, 1926, 13 (eastern Quintana Roo, Yucatán).—Snethlage, Journ. für Orn., lxxvi, 1928, 572, 678 (breeding habits, etc., n. e. Brazil).—Sturgis, Field Book Birds Panama Canal Zone, 1928, 142 (descr.; habits; Panama Canal).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 368 (near Río Frío, Magdalena, Colombia).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 164 (Hacienda California, Panajachel, Finca El Ciprés, Guatemala); Bull. Mus. Comp. Zool., lxxii, 1932, 318 (Pérme, Obaldia, Panama); lxxviii, 1935, 302 (throughout Panama).—Carriker and de Schauensee, Proc. Acad. Nat. Sci. Philadelphia, lxxxvii, 1935, 416 (Guatemala; Quirigua; spec.)—van Tyne, Misc. Publ. Mus. Zool., Univ. Michigan, No. 27, 1935, 18 Uaxactún, Petén, Guatemala; spec.).—Berlioz, Bull. Mus. His. Nat. Paris, sec. 2, xi, 1939, 362 (Chiapas; Juncana; spec.).—Holmberg, El Hornero, vii, 1939, 159 (extreme s. United States to Argentina).—Sutton and Burleigh, Occ. Pap. Mus. Zool., Louisiana State Univ., No. 3, 1939, 27 (ne. Mexico; Tamaulipas; spec. from Victoria and Gómez Farias; nest.); Auk, lix, 1942, 10 (Gómez Farias region, sw. Tamaulipas; spec.; crit.).—del Campo, Anal. Inst. Biol., xiii, 1942, 701 (Chiapas; Prusia; spec.).

Falco albogularis Robinson and Richmond, Proc. U. S. Nat. Mus., xxiv, 1901, 169 (San Julian, Venezuela).

Falco albigularis albigularis Swann, Synop. Accip., pt. 4, 1922, 191 (Mexico to Argentina).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 160 (Bonda, Cincinnati, and Mamatoco, Santa Marta, Colombia; crit.).—Peters, Bull. Mus. Comp. Zool., lxix, 1929, 418 (Lancetilla, Honduras; food habits; crit.); lxxi, 1931, 309 (Changuinola, Panama); Check-list Birds of World, i, 1931, 291.—Huber, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 213 (ne. Nicaragua; spec.; colors; records).—Stone, Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1932, 301 (Honduras; Lancetilla, Truxillos, Segovia River, and Ruatan Island).—Belcher and Smooker, Ibis, 1934, 594 (Trinidad and Tobago; uncommon res.; eggs).—Deignan, Auk, liii, 1936, 188, in text (Honduras; spec., descr.).—Aldrich, Sci. Publ. Cleveland Mus. Nat. Hist., vii, 1937, 51 (spec.; Paracoté, Azuero Peninsula, Panama).—van Rossem and Hachisuka, Proc. Biol. Soc. Washington, l, 1937, 107, in text (crit.).—Pinto, Rev. Mus. Paulista, xxii, 1938, 91 (Brazil; distr.), 548 (Amazonas, Brazil; 1 spec. from Manacapurú).—Dugand, Rev. Acad. Colomb., iii, 1940, 222, in text (Magdalena-Caribbean area of Colombia; uncertain record).—Griscom and Greenway, Bull. Mus. Comp. Zool., lxxxviii, 1941, 118 (Lower Amazona; Rio Tapajóz, Boim Caxiricatuba, Obidos, Santarém, Villa Braza; spec.).—Traylor, Publ. Field Mus. Nat. Hist., zool. ser., xxiv, 1941, 204 (Chichen Itzá and Pacaitun, Yucatán; spec.).—Blake and Hanson, Publ. Field Mus. Nat. Hist., zool. ser., xxii, No. 9, 1942, 526 (Michoacán; 10 miles s. of Cerro de Tancitaro; spec.).—Sutton and Pettingill, Auk, lix, 1942, 10, in text (Gómez Farías region, sw. Tamaulipas; intermediate).—Brodkorb, Misc. Publ. Mus. Zool. Univ. Michigan, No. 56, 1943, 29 (Mexico; Chiapas; El Aguacate; spec.).—Wetmore, Smiths. Misc. Coll., cvi, No. 1, 1946, 30 (Pearl Islands, Panama).

Hypotriorchis albigularis LAWRENCE, U. S. Nat. Mus. Bull. 4, 1875, 39 (Tapana, Tehuantepec, Oaxaca, June, Aug.; fresh colors of unfeathered parts).

Falco rufigularis DAUDIN, Traité d'Orn., ii, 1800, 131 (Surinam; based on *Falco aurantius* γ Latham, Index Orn., i, 1790, 48, Suppl., 29).—STRICKLAND, Orn. Syn., i, 1855, 88.—RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 45 (Brazil; Bolivia; Tehuantepec, Oaxaca); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 130, footnote.—RIKER, Auk, viii, 1891, 161 (Santarém, Brazil).—ALLEN, Bull. Amer. Mus. Nat. Hist., v, 1893, 147 (Chapada, Matto Grosso, sw. Brazil).—CHAPMAN, Bull. Amer. Mus. Nat. Hist., vi, 1894, 72 (Trinidad); vii, 1895, 324 (Trinidad); viii, 1896, 286 (Chichen Itzá, Yucatán); xxxvi, 1917, 250 (La Manuelita, La Palma, La Candela, Honda, and Florencia, Colombia).—GOELDI, Ibis, 1897, 155 (Counani, ne. Brazil); 1903, 497 (Rio Capím, ne. Brazil).—BANGS, Proc. Biol. Soc. Washington, xiii, 1899, 92 (La Concepción, Santa Marta, Colombia).—SALVIN and GODMAN, Biol. Centr.-Amer., Aves, iii, 1901, 116, part (Tres Marías Islands, Tepic; Santa Efigenia, Tapanatepec, and Cacoprieto, Oaxaca; Orizaba, Mirador, and Playa Vicente, Veracruz; Altamira and Tampico, Tamaulipas; Mérida and Chichen Itzá, Yucatán; Ruatan Island, San Pedro, and Río Segovia, Honduras; Río Escondido, Nicaragua; San José, La Palma de San José, and Pozo Azul de Pirris, Costa Rica; Panama Railway, Calovebora, Volcán de Chiriquí, Santa Fé de Veraguas, and Punta de Sabana, Panama; South America).—ALFARO, Paginas Illustr., ii, No. 61, 1905, 969, cut from photograph (habits, etc., in Costa Rica).—BRABOURNE and CHUBB, Birds South Amer., i, 1912, 73.—CHERRIE, Brooklyn Inst. Sci. Bull., vol. 2, 1916, 348 (Caicara, Venezuela; food; fresh colors of unfeathered parts).—CHUBB, Birds Brit. Guiana, i, 1916, 277 (habits).—BANGS and PENARD, Bull. Mus. Comp. Zool., lxxii, 1918, 40 (Paramaribo, Surinam).—LÖNNBERG and RENDAHL, Ark. Zool., xiv, No. 25, 1922, 42 (Mindo, Ecuador).—YOUNG, Ibis, 1925, 467 (Corentyne coast, British Guiana; nest and eggs; food); 1929, 14 (coast of British Guiana; nesting).—STONE, Proc. Acad. Nat. Sci. Philadelphia, lxxx, 1928, 155 (Pará, Brazil).

Falco (*Hypotriorchis*) *rufigularis* BERTONI, Fauna Paraguaya, 1913, 43 (upper Rio Paraná).

Falco rufigularis subsp. MCLELLAN, Proc. California Acad. Sci., ser. 4, xvi, 1927, 21 (San Blas, Mexico; meas.; crit.).

Falco rufigularis rufigularis SWANN, Synopt. List Accip., pt. 4, 1920, 138 (Mexico to Argentina).—HELLMAYR, Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 455 (Piauhy and Goyaz, Brazil; crit.).—NAUMBURG, Bull. Amer. Mus. Nat. Hist., lx, 1930, 114 (crit.; distr.; Matto Grosso, Brazil).

Falco albigularis rufigularis SNETHLAGE, Journ. für Orn., lxxvi, 1928, 554 (breeding season, var. South American countries).

Hypotriorchis rufigularis GRAY, Gen. Birds, i, 1844, 20; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 54 (Bahia, Brazil; Brit. Guiana); Hand-list, i, 1869, 21, No. 184.—CASSIN, Proc. Acad. Nat. Sci. Philadelphia, 1855, 278, footnote (Nuevo León).—SCLATER, Proc. Zool. Soc. London, 1855, 134 (Bogotá, Colombia); 1859, 390 (Playa Vicente, Veracruz).—SCLATER and SALVIN, Ibis, 1859, 219 (Guatemala); Proc. Zool. Soc. London, 1867, 590 (Rio Tocantins, Brazil); 1869, 252 (San Esteban, Venezuela); Nom. Av. Neotr., 1873, 121; Proc. Zool. Soc. London, 1870, 838 (Honduras); 1879, 541 (Neche, Colombia).—SALLE and PARZUDAKI, Cat. Oiseaux Méxique, 1862, 1 (Mexico).—LAWRENCE, Ann. Lyc. Nat. Hist. New York, vii, 1862, 462 (Isthmus Panama); Mem. Boston Soc. Nat. Hist., ii, 1874, 301 part (Tres Marías Islands, Tepic; habits).—SALVIN, Proc. Zool. Soc. London, 1867, 158 (Santa Fé de Veraguas,

Panama); 1870, 215 (Calovebora and Volcán de Chiriquí, Panama); Ibis, 1886, 76 (Bartica Grove, Camacusa, and Roraima at 3,500 feet, British Guiana); 1889, 375 (Ruatan Island, Honduras).—Pelzeln, Orn. Bras., Abth., 1, 1868, 5; Abth., 4, 1870, 397.—Lawrence and Grayson, Proc. Boston Soc. Nat. Hist., xiv, 1872, 269 (Tres Marías Islands, Tepic).—Allen, Bull. Essex Inst., viii, 1876, 82 (Santarém, Brazil).—Gurney, Ibis, 1882, 158, 159, in text (crit.); List Diurn. Birds Prey, 1884, 103 (crit.); Cat. Birds Prey, 1894, 29.—Taczanowski, Proc. Zool. Soc. London, 1882, 47 (Huambo, Peru); Orn. du Pérou, i, 1884, 150.—Berlepsch and Taczanowski, Proc. Zool. Soc. London, 1883, 574 (Chimbo, w. Ecuador).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Berlepsch, Journ. für Orn., 1887, 133 (South American range); Nov. Zool., xv, 1908, 294 (Cayenne).—Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 261 (Brazil; Guiana; Guatemala; La Parada, Oaxaca).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; listed).—Koenigswald, Journ. für Orn., 1896, 385 (São Paulo, s. Brazil).—Loat, Ibis, 1898, 563 (Wakenaam Island, Brit. Guiana).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 115 (Río Catañapa and Puerto Samora, Venezuela; fresh colors of unfeathered parts).—Hellmayr, Abh. Bayer Akad. Wiss., Kl. II, xxii, pt. 3, 1905 (1906), 572 (crit. as to *Bidens rufigularis* Spix); Nov. Zool., xiv, 1907, 39 (Obidos and Santarém, Brazil).—Snethlage, Journ. für Orn., 1908, 22 (Rio Purús, w. Brazil); Bol. Mus. Goeldi, v, 1908, 67 (Rio Purús).—Dabbene, Orn. Argent., 1910, 249 (Tucumná; Mocoví, Chaco; upper Rio Paraná).

Falco rufigularis pax Chubb, Bull. Brit. Orn. Club, xxxix, No. ccxxxvii, Nov. 30, 1918, 22 (Charuplaya, Bolivia; coll. Brit. Mus.); Ibis, 1919, 289 (Charuplaya, Bolivia, 1,300 m.).—Swann, Synopt. List Accip., pt. 4, 1920, 139; Synop. Accip., pt. 4, 1922, 192 (se. Bolivia; nw. Argentina).

Falco rufigularis petoensis Chubb, Bull. Brit. Orn. Club, xxxix, No. ccxxxvii, 1918, 22 (Peto, Yucatán; coll. Brit. Mus.).—Swann, Synopt. List Accip., pt. 4, 1920, 139; Synop. Accip., pt. 4, 1922, 192.—Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 303 (syn.; distr.).

Falco albicularis petoensis Swann, Synopt. Accip., 1922, 192 (Yucatán).

Falco thoracicus Lichtenstein, Verz. Säug. und Vögel Mus. Berlin, 1818, 30 (new name for *F. rufigularis* Daudin).—Donovan, Nat. Reposit., 1822, p. 45.

Falco cucullatus Swainson, Anim. in Menag., 1838, 340 (Brazil, Trinidad, etc.).

Falco (*Hypotriorchis*) *aurantiacus* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 257 (South America).

Falco haemorrhoidalis Hahn, Vög., Livr. 18, 1826, text to pl. 1 (Surinam).

(?) *Hypotriorchis auranticulus* Bonaparte, Rev. Mag. Zool., vi, 1854, 535.

Hypotriorchis ophryophanes Salvadori, Boll. Mus. Zool. Anat. Comp. Torino, x, 1895, 20 (Colonia Risso, Paraguay).

Falco ophyrophanes Ihering, Rev. Mus. Paulista, vi, 1904, 339 (Paraguay).

Falco rufigularis ophryophanes Hellmayr and Conover, Cat. Birds Amer., pt. 1, No. 4, 1949, 308.

Falco (*Hypotriorchis*) *ophyrophanes* Bertoni, Fauna Paraguaya, 1914, 43.

Hypotriorchis melanogyne Bertoni, Aves Nuevas del Paraguay, 1901, 168 (see Lynch-Arribalzaga, Apunt. Crit. Av. Par. Bertoni, 1902, 378).

Falco rufigularis supsp. McLelland, Proc. California Acad. Sci., ser. 4, xvi, 1927, 21 (San Blas, Nayarit).

FALCO ALBIGULARIS PETROPHILUS van Rossem and Hachisuka

Sonora White-throated Falcon

Adult.—Similar to the nominate form but differs in the color of the upperparts, which are plumbeous-slate instead of plumbeous-black or blackish plumbeous, this difference being particularly noticeable on the pileum, forehead, and cheeks; throat, upper breast, and partial collar around hindneck white, averaging more faintly tinged with buffy where adjoining dark portions, as opposed to deeper buff to ochraceous; reddish brown of median underparts and thighs slightly paler.[52]

Other plumages.—Not seen.

Adult male.—Wing 192, 192; tail 90.5, 99; culmen from cere 11.5, 12.5; tarsus 33.5, 33; middle toe without claw 30.5, 30.5 mm. (2 specimens from Guirocoba, including the type).

Adult female.—Wing 224, 228; tail 118, 118; culmen from cere 14.5, 15; tarsus 36, 38; middle toe without claw 34, 36 mm. (2 specimens from Mazatlán and Guirocoba).

Range.—Resident in the foothills of the arid Tropical Zone from extreme southeastern Sonora (Guirocoba) to Sinaloa (Sierra Madre (?), Plomosas, and Mazatlán), east to southwestern Tamaulipas (Gómez Farias), where it intergrades with the nominate race.

Type locality.—Guirocoba, southeastern Sonora.

Falco rufigularis Salvin and Godman, Biol. Centr. Amer., Aves, iii, 1901, 116, part (Sierra Madre (?) and Mazatlán, Sinaloa).

Hypotriorchis rufigularis Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 301, part (Mazatlán, Sinaloa).

Falco albigularis petrophilus van Rossem and Hachisuka, Proc. Biol. Soc. Washington, l, 1937, 107 (Guirocoba, Sonora; descr.); Auk, lv, 1938, 309, in text (Sonora; breeding).—Sutton and Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 3, 1939, 27.—Sutton and Pettingill, Auk, lix, 1942, 10, in text (Gómez Farias region, sw. Tamaulipas, intermediate).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 63 (Sonora).

Subgenus Rhynchofalco Ridgway

Medium-sized, rather slender falcons (wing about 233–295 mm.) with tail much longer than distance from tip of longest primary to tip of longest primary covert; length of cere on top equal to more than one-third the length (curve) of culmen; depth of bill at base at rhamphotheca equal to distance from anterior edge of cere (in front of nostril) to tip of maxilla; distance from bend of wing to tip of longest primary covert decidedly less than from latter point to tip of longest

[52] In the original description van Rossem and Hachisuka write that a specimen "from Mazatlán, Sinaloa . . . seems to approximate the characters of *petrophilus*." I have seen this Mazatlán specimen and it is paler above than any of a good series of the nominate race, and I therefore place it with this race.

primary; basal phalanx of middle toe with transverse scutella; sexes alike in coloration, and young not conspicuously different from adults.

Bill relatively large, its depth at base of rhamphotheca greater than its width at same point and equal to distance from anterior edge of cere (in front of nostril) to tip of maxilla; culmen strongly and regularly decurved from base, distinctly ridged; gonys moderately convex, ascending terminally, prominent basally, indistinctly ridged; maxillary tomium with "tooth" prominent, preceded by a rather deep concave incision; length of cere on top equal to more than one-third the length (curve) of culmen. Nostril moderate, nearly circular. Wing long and pointed, the longest primary exceeding distal secondary by decidedly less than half the length of wing; third or second and third primaries (from outside) longest, the first (outermost) shorter than fourth; first and second primaries with inner webs emarginated, the emargination on first between tips of sixth and seventh, that on second between tips of fourth and fifth; second and third primaries with outer webs slightly sinuated. Tail nearly two-thirds as long as wing, distinctly rounded, the graduation equal to about length of hallux (without claw), the rectrices (12) not tapering terminally. Tarsus nearly as long as middle toe with claw, more than one-sixth as long as wing, rather slender, the upper portion feathered in front for about one-fourth its length, elsewhere covered with small, irregularly hexagonal or roundish scales, except on inner side of acrotarsium, where covered by a continuous series of large subquadrate scutella; the lower portion of acrotarsium with several frontal transverse scutella; outer toe, without claw, extending to, but not beyond, penultimate articulation of middle toe, the inner toe decidedly shorter; hallux, without claw, a little longer than basal phalanx of middle toe, its claw shorter than the digit; upper surface of toes with transverse scutella except at base, those of middle toe practically continuous with those on lower part of acrotarsium.

Plumage and coloration.—Plumage compact but rather soft, the primaries and rectrices only moderately rigid, the former with obtuse tips; orbital region bare. Adults (sexes alike) plain slate-gray above (darker on pileum), interrupted by a band of buff or ochraceous across hindneck, the rump and upper tail coverts broadly barred with paler gray, the tail broadly barred or narrowly banded with dusky and pale gray or grayish white; a broad supraauricular stripe (confluent with ochraceous nuchal band), lower portion of auricular region, chin, throat, foreneck, and median portion of breast immaculate white, more or less tinged with buff; upper portion of auricular region and a "mustache" from beneath anterior portion of eye across malar region to sides of throat grayish dusky; sides and flanks deep or dark slate,

narrowly and rather indistinctly barred with whitish, the more posterior underparts plain deep buff or ochraceous. Young similar but colors duller, the gray more brownish, the chest and breast striped with dusky.

Range.—Continental tropical and subtropical America, from southern Texas, New Mexico, and Arizona to Argentina. (Monotypic.)

FALCO FEMORALIS SEPTENTRIONALIS Todd

Northern Aplomado Falcon

Adult (sexes alike).—White phase: A very narrow frontal line on forehead whitish to cartridge buff; crown, occiput, and nape deep neutral gray with a slight ashy bloom; the nape crossed by a collar of pinkish buff to very pale pinkish cinnamon; scapulars, interscapulars, upper wing coverts, back, and rump neutral gray slightly washed with drab, the interscapulars averaging somewhat darker than the back or wings; primaries chaetura drab darkening to fuscous terminally, the inner webs, except for an apical area about 35–50 mm. long, crossed by 10 to 13 white bars, these bars not quite reaching the edge of the feather; the innermost three pairs of primaries broadly tipped with white and with the dark areas more grayish, less chaetura drab; secondaries light neutral gray to neutral gray, broadly tipped with white and mottled and barred with white on the inner webs; upper tail coverts neutral gray barred with white and tipped with grayish white, the white bars, four in number, narrower than the gray ones; rectrices black with a plumbeous cast, crossed by eight narrow transverse white bands, the basal two of which are concealed by the coverts, the terminal one wider than the others (in some specimens the median pair are suffused with light gull gray and crossed with 12 to 13 pale bands which are wider than all the dark ones except the very broad subterminal one); lores buffy white; a broad, conspicuous supraoral stripe originating above the middle of the eye and running back above the ear coverts to the occiput (where the two of opposite sides merge with the nuchal collar) whitish to cartridge buffy becoming more cinnamomeous posteriorly; a broad deep neutral gray stripe with a slight plumbeous wash running from the posterior angle of the eye back over the upper edge of auriculars and extending broadly down the side of the neck; another, but much smaller one, of similar color starting at lower border of bare suborbital space, passing downward across the cheeks, forming a "mustache," leaving the middle area of the ear coverts, the chin, throat, and whole breast white, the breast slightly suffused with light buff and defined posteriorly with a semicircular outline; broad area covering the sides of the breast, sides, flanks, and meeting rather narrowly across the upper part of the abdomen, chaetura black to black with narrow, indistinct transverse

whitish bars; rest of abdomen, thighs, posterior portion of flanks, and the under tail coverts rich ochraceous-buff to dark cinnamon-buff, immaculate; under wing coverts very pale cinnamon, those forming a broad border to the bend of the wing immaculate, the others barred and serrated with chaetura black, the greater under coverts white instead of cinnamon-buff; bare orbital area light yellow; iris deep yellowish brown to dark hazel; cere light yellow; bill yellowish basally, slate color terminally; tarsi and toes light yellow; claws black.

Adult.—Cinnamon phase: Similar to the white phase, but with the forehead narrowly pinkish buff; the supraoral stripe, the cheeks, auriculars, and nuchal collar pinkish cinnamon; the chin, throat, and breast ochraceous buff to cinnamon buff.

Juvenal (sexes alike).—White phase: Generally similar to the adult

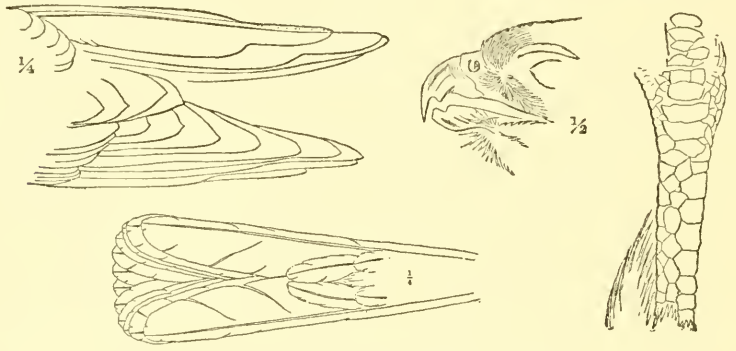

Figure 49.—*Falco* (*Rhynchofalco*) *femoralis*.

of the white phase, but the top of head and interscapulars darker, almost chaetura black, mixed with buffy brown; rest of upper surface of body and of wings somewhat darker than in adults and heavily washed with hair brown to buffy brown; rectrices fuscous instead of blackish and with 10 instead of 8 whitish bars; the breast with large, elongated wedge-shaped streaks of fuscous to fuscous-black; under wing coverts with the blackish areas wider, reducing the white bars to spots; breast and light areas of head more washed with light buff than in adult.

Juvenal.—Cinnamon phase: Similar to the juvenal of the white phase, but with the chin, throat, breast, light areas of head ochraceous-buff to cinnamon-buff.

Natal down.—Unknown.

Adult male.—Wing 248–267 (257); tail 172-193 (182); culmen from cere 16–18 (17); tarsus 48–52 (51); middle toe without claw 35–38 (36.4) mm.[53]

[53] Eight specimens from Arizona, New Mexico, and Mexico.

Adult female.—Wing 272–302 (290.4); tail 192–207 (198.7); culmen from cere 17–20 (19); tarsus 50–60 (55.8); middle toe without claw 38–42 (40 mm.).[54]

Range.—Breeds from southern Arizona (Camp Bowie; Fort Huachuca; Tucson (1 record)); southwestern New Mexico (Lake Palomas; Apache; Hachita; Playas Valley; Rincon; Jornada; Engle; Silver City; Rio Mimbres; Sepur) and southern Texas (Brownsville; Lower Rio Grande; trans-Pecos district) (now extremely rare in most or all of its range in the United States); south through Mexico to Yucatán (Tamaulipas—Altamira; Tampico; Sinaloa—Mazatlán; Nayarit—San Blas; Veracruz—Jalapa; Oaxaca—Tehuantepec; Yucatán; and Chiapas—Prusia).

Winters throughout its range, but may be scarce in winter in the northern part (New Mexico, etc.); has been taken once in Guatemala (San Agustín).

Type locality.—Fort Huachuca, Ariz.

Hypotriorchis femoralis (not *Falco femoralis* Temminck) Gray, List Spec. Brit. Mus., pt. 1, Accip., ed. 2d., 1848, 56, part (Mexico).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 278 (New Mexico); *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 11 (New Mexico); 1860 ed., pl. 1.—Sclater, Proc. Zool. Soc. London, 1856, 285 (state of Veracruz, Mexico).—Brewer, North Amer. Oology, pt. 1, 1857, 14, pl. 3, fig. 22; Ibis, 1878, 487 (lower Rio Grande Valley, Tex.).—Baird, Cat. North Amer. Birds, 1859, No. 9.—Heermann, Rep. Pacific R. R. Surv., x, No. 1, 1859, 9, pl. 1 (s. New Mexico; descr.; habits).—Sclater and Salvin, Ibis, 1859, 219 (Guatemala); Nom. Av. Neotr., 1873, 121, part.—Lawrence, Mem. Boston Soc. Nat. Hist., ii, 1874, 301 (Mazatlán, Sinaloa; habits); U. S. Nat. Mus. Bull. 4, 1876, 39 (Tehuantepec City, Oaxaca).—Boucard, Proc. Zool. Soc. London, 1883, 457 (Yucatán).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; listed).

Falco femoralis (not of Temminck) Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (s. New Mexico).—Sumichrast, Mem. Boston Soc. Nat. Hist., i, 1869, 560 (hot region, Veracruz).—Cooper, Orn. California, Land Birds, 1870, 461 (Arizona; New Mexico).—Coues, Key North Amer. Birds, 1872, 215; Check List North Amer. Birds, 1873, No. 347.—Henshaw, Rep. Orn. Spec. Expl. West 100th Meridian, 1874, 137 (Camp Bowie, Ariz.); Zool. Expl. W. 100th Meridian, Orn., 1875, 413 (Camp Bowie).—Cubas, Cuadro Geogr., Estadístico, Descr. e. Hist. de los Estados Unidos Mexicanos, 1884, 170 (Mexico; common names).

Falco (*Hypotriorchis*) *femoralis* Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 43 (s. Arizona).

Falco (*Rhynchofalco*) *femoralis* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 155.

Aesalon femoralis Salle and Parzudaki, Cat. Oiseaux Méxique, 1862, 1 (Mexico).

Rhynchofalco femoralis Goode, U. S. Nat. Mus. Bull. 20, 1883, 340.

Hypotriorchis aurantius (not *Falco aurantius* Gmelin) Heermann, Proc. Acad. Nat. Sci. Philadelphia, 1854, 117.

Falco fusco-caerulescens (not *F. fusco-coerulescens* Vieillot) Sharpe, Cat. Birds

[54] Seven specimens from Texas, Arizona, New Mexico, and Mexico.

Brit. Mus., i, 1874, 400, part (Mexico); Hand-list, i, 1899, 275, part (s. Texas; Central America).—Merrill, Proc. U. S. Nat. Mus., i, 1878, 152 (Fort Brown, Tex.; habits; descr. nest and eggs).—Bendire, Proc. U. S. Nat. Mus., x, 1888, 552 (Fort Huachuca, Ariz.; habits; descr. nests and eggs).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 118 (Altamira and Tampico, Tamaulipas; Mazatlán, Sinaloa; San Blas, Tepic; Oaxaca City and Tehuantepec, Oaxaca; Jalapa, Veracruz; Yucatán; San Agustín, Guatemala).—American Ornithologists' Union, Check-list, ed. 3, 1910, 166.—Visher, Auk, xxvii, 1910, 281 (Tucson Valley, Ariz.).—Swarth, Pacific Coast Avif., No. 10, 1914, 28 (Arizona; nesting at Fort Huachuca; rare in recent years).—Friedmann, Auk, xlii, 1925, 545 (lower Rio Grande Valley, Tex.).—Griscom and Crosby, Auk, xlii, 1925, 536 (status, Brownsville, Tex.).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 108 (descr.; characters).—Miller, Condor, xxix, 1927, 151, in text (osteology).

Falco fuscocoerulescens Coues, Check List North Amer. Birds, ed. 2, 1882, No. 511; Key North Amer. Birds, ed. 2, 1884, 539.

Falco fusco-coerulescens American Ornithologists' Union, Check-list, 1886, No. 359; ed. 2, 1895, 139.—Anthony, Auk, ix, 1892, 361 (between Apache and Hachita, sw. New Mexico).—Fisher, Hawks and Owls United States, 1893, 114.—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; distr.).—Bailey, Handb. Birds Western United States, 1902, 170 (descr.; habits).—Swarth, Pacific Coast Avif., No. 4, 1904, 8 (Huachuca Mountains, Ariz.; formerly common).—van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 25 (Brewster County, Tex.; very rare).—Monson, Condor, xliv, 1942, 222 (se. Arizona).

Falco fusco-caerulescens fusco-caerulescens Swann, Synopt. List Accip., pt. 4, 1920, 139, part (Mexico).

Rhynchofalco fusco-caerulescens Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1884, No. 419.

Hypotriorchis fusco-caerulescens Gurney, List Diurn. Birds Prey, 1884, 103, part; Cat. Birds Prey, 1894, 29, part.

Aesalon fusco-caerulescens Heine and Reichenow, Mus. Hein. Orn., 1890, 261, part (Mexico).

Falco fusco-coerulescens septentrionalis Todd, Proc. Biol. Soc. Washington, xxix, 1916, 98 (Fort Huachuca, Ariz.; coll. U. S. Nat. Mus.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 161 (Brownsville and Cameron County, Tex.; Tampico, Tamaulipas; Fort Huachuca, Ariz.; crit.; measurements).—Bailey, Birds New Mexico, 1928, 191 (New Mexico; genl.).—American Ornithologists' Union, Check-List North Amer. Birds, ed. 4, 1931, 75.—Bent, U. S. Nat. Mus. Bull. 170, 1938, 96 (life hist.).—Todd, Auk, lv, 1938, 132, in text (Brownsville, Tex.; spec.).—Hill, Auk, lxi, 1944, 230 (meas.).

Falco fuscocaerulescens septentrionalis Oberholser, Auk, xxxiv, 1917, 201.—Swann, Synopt. List Accip., pt. 4, 1920, 139 (Arizona).—Peters, Check-list Birds of World, i, 1931, 294.—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 164 (winter; Guatemala).—Brooks, Auk, l, 1933, 61 (Brownsville, Tex.).—Wetmore, Proc. U. S. Nat. Mus., lxxxvii, 1939, 188, in text (North America).—del Campo, Anal. Inst. Biol., xiii, No. 2, 1942, 701 (Chiapas: Prusia; spec.).

Rhynchofalco fuscocoerulescens septentrionalis Oberholser, Auk, xxxv, 1918, 207.—de Laubenfels, Wils. Bull., xxxvi, 1924, 169 (Brownsville, Tex.).

Rhynchofalco fusco-caerulescens septentrionalis Swann, Synopsis Accip., pt. 4, 1922, 211 (Mexico to Arizona).

FALCO FEMORALIS FEMORALIS Temminck

Southern Aplomado Falcon

All plumages like those of the northern race, but the birds smaller in size.

Adult male.—Wing 230–254 (240.9); tail 149–170 (157.5); culmen from cere 15–16.5 (16); tarsus 43–50 (44.2); middle toe without claw 34–36 (34.6 mm.).[55]

Adult female.—Wing 261–282 (270.6); tail 169–182 (176.4); culmen from cere 18–20 (18.6); tarsus 45–51 (47.4); middle toe without claw 35–40 (37.7 mm.).[56]

Range.—Resident from British Honduras (one record, Ycacos Lagoon) and Panama (one record, arid plains of Aguadulce, Cocle Province; also one vague and uncertain mention of the species in Costa Rica); south throughout most of South America from Colombia to Tierra del Fuego, excepting the high Andes of Ecuador and Peru (where it is replaced by another subspecies, *Falco femoralis pichinchae* Chapman); Colombia (Mamatoco, Cali, Río Frío); Venezuela (Orinoco River, Apure River, Altagracia, Caicara, Ciudad Bolívar, Lake Valencia, Angostura); Trinidad; British Guiana (Mount Roraima, Upper Takutu Mountains, Perara); Dutch Guiana (Surinam); French Guiana; Brazil (Amazonia, Pará, lower Parnahyba River, Paranaguá, Goiaz, Minas Gerais, Joazeiro, São Paulo, Matto Grosso, etc.); Peru (?) (Chachuapata, Arequipa, Chosica, Ingapirca, Piriyacu, Pichacani, Tinta, Maraynioc)[57]; Bolivia (Aullagas, Moxos, Chiquitos (no Bolivian birds examined)); Chile (Sacayu, Santiago, Vilugu); Argentina (Buenos Aires, Ajo, Cape San Antonio, Rosas, Corrientes, Entre Ríos, Santa Elena, Conchitas, Río Cuarto, Caiza, Talea, Fraile Muerto, Tucumán, Salta, Lerma, Córdoba, Chaco, La Rioja, Lomas de Zamora, Formosa); Patagonia (Port Desire, Moreno); Tierra del Fuego.

The absence of Uruguayan records is not to be interpreted as significant. Records will undoubtedly be forthcoming with more observation.

Type locality.—Paraguay.

Falco femoralis Temminck, Planches Col., i, 1823, pls. 121, 343, and text.—Spix, Av. Bras., i, 1824, 18 (Amazonia).—Cuvier, Règne Anim., ed. 2, i, 1829, 322.—Lesson, Man. d'Orn., i, 1828, 79; Traité d'Orn., 1831, 89.—Stephens, Shaw's Gen. Zool., xiii, pt. 2, 1826, 38 (Brazil).—d'Orbigny, Voy. Amér. Mérid., iv, pt. 3, 1839, 116 (Buenos Aires and Corrientes, Argentina; Paraguay; Moxos and Chiquitos, Bolivia; habits).—Lafresnaye and d'Orbigny, Synop. Avium, 1839, 7 (Paraguay; Argentina; Bolivia).—Gould, Zool.

[55] Eleven specimens from Colombia, Paraguay, Bolivia, Argentina, and Chile.

[56] Seven specimens from Venezuela, Colombia, Bolivia, and Argentina.

[57] No specimens from these Peruvian localities have been examined. It may be that some of them are *pichinchae* Chapman.

Voy. *Beagle*, pt. 3, 1841, 28 (Port Desire, Patagonia, lat. 47° 44′ S.; descr. eggs).—Fraser, Proc. Zool. Soc. London, 1843, 109 (Chile; habits).—Tschudi, Fauna Peruana, Aves, 1844, 408; Wiegmann's Archiv., x, pt. 1, 1844, 266 (Peru).—Kaup, Isis, 1847, 62 (monogr.), 364, 376, 377; Jardine's Contr. Orn., 1850, 54.—Strickland, Orn. Syn., i, 1855, 88.—Burmeister, Syst. Ueb. Th. Bras., ii, 1856, 96; Journ. für Orn., viii, 1860, 242 (Río Cuarto, Argentina); Reis. La Plata Stat., ii, 1861, 437.—Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 20 (monogr.); No. 36, livr. 10, 1873, 38.

Falco (*Aesalon*) *femoralis* Kaup, Mus. Senckenb., iii, Heft 3, 1845, 258 (South America).

Falco (*Rhynchofalco*) *femoralis* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 46 (Brazil).

Bidens femoralis Spix, Av. Bras., i, 1824, pl. 8.

Hypotriorchis femoralis Gray, Gen. Birds, i, 1844, 20; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 56, part (South America; e. Patagonia); Hand-list, i, 1869, 21, No. 194, part.—Cabanis, *in* Schomburgk's Reis. Brit. Guiana, iii, 1848, 724.—Cassin, Rep. U. S. Naval Astron. Exped. (Gilliss), ii, 1855, 177 (Chile).—Léotaud, Ois. Trinidad, 1866, 24.—Sclater, Proc. Zool. Soc. London, 1867, 330, 338 (Chile).—Sclater and Salvin, Proc. Zool. Soc. London, 1867, 590 (Mexiana Island, Brazil), 988 (Arequipa, Peru); 1868, 143 (Conchitas, Argentina), 570 (w. Peru); 1869, 155 (Tinta, Peru), 252 (Lake Valencia, Venezuela); 1879, 638 (Moxos and Chiquitos and environs of Chuquisaca, Bolivia); Nom. Av. Neotr., 1873, 121, part.—Pelzeln, Orn. Bras., Abth. 1, 1868, 5.—Lee, Ibis, 1873, 13 (Fraile Muerto, Argentina), 135 (Entre Ríos, Argentina).—Durnford, Ibis, 1877, 187 (Buenos Aires, Argentina); 1878, 398 (centr. Patagonia; descr. nest and eggs).—Gibson, Ibis, 1879, 412 (Cape San Antonio, Argentina).—Salvin, Ibis, 1880, 362 (Salta, Argentina); 1886, 76 (Roraima, Brit. Guiana, 3,500 feet).—White, Proc. Zool. Soc. London, 1883, 41 (Córdoba, Argentina).—Taczanowski, Orn. Pérou, i, 1884, 151.—Berlepsch, Ibis, 1894, 437 (Angostura, Venezuela).—Withington, Ibis, 1888, 470 (Lomas de Zamora, Argentina).

Aesalon femoralis Bonaparte, Rev. Mag. Zool., vi, 1854, 535.—Taczanowski, Proc. Zool. Soc. London, 1874, 550 (Maraynioc, Peru).

Rhynchofalco fusco-caerulescens femoralis Swann, Synop. Accip., pt. 4, 1922, 211 (Venezuela, n. to Central America?, s. to Matto Grosso, Brazil).

Falco cyanescens Vieillot, Encycl. Méth., iii, 1823, 1234 (Paraguay; based on *Aloncillo aplomado* Azara, Apunt. Parag., i, 1802, 75; see Hartlaub, Index Azara, 1847, 3).

Falco fusco-coerulescens Vieillot, Nouv. Dict. d'Hist. Nat., xi, 1817, 90 (Paraguay; based on *Aloncillo oscuro azueljo* Azara, Apunt. Parag., i, 1802, 179).—Koenigswald, Journ. für Orn., xliv, 1896, 385 (São Paulo, s. Brazil) —Penard and Penard, Vög. Guyana, i, 1908, 432 (Surinam).—Holmberg, Secundo Censo Argent., 1898, 508.—Giacomelli, El Hornero, iii, 1923, 78 (La Rioja, Argentina).

Falco fusco-caerulescens Sharpe, Cat. Birds Brit. Mus., i, 1874, 400, part (e. Patagonia; Chachuapata and Arequipa, Peru; Mexiana Island, Brazil).—(?) Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (Costa Rica).—Frenzel, Journ. für Orn., xxxix, 1891, 114 (Córdoba, Argentina).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 147 (Chapada, Matto Grosso, sw. Brazil).—Holland, Ibis, 1893, 488 (Santa Elena, Argentina; habits).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 71 (Trinidad; habits); xxxvi, 1917, 250 (Cali, Colombia).—Salvadori, Boll. Mus. Zool., Torino, xii, 1897, 30 (Caiza and Talea, Argentina).—Lane, Ibis, 1897, 180 (Sacayu,

11,000 feet, and Vilugu, Chile).—Ihering, Rev. Mus. Paulista, iii, 1899, 365 (São Paulo, s. Brazil); iv, 1900, 272 (descr. eggs).—Sharpe, Hand-list, i, 1899, 275, part.—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 118, part (South America, s. to Patagonia).—Lonnberg, Ibis, 1903, 447 (Moreno, Argentina; food).—Bruch, Rev. Mus. La Plata, xi, 1904, 251 (Lerma, Salta, Argentina).—Hagmann, Journ. für Orn., liv, 1906, 109 (Mexiana Island, Brazil; descr. eggs); Zool. Jahrb., 1906, 23 (Mexiana Island).—Crawshay, Birds Tierra del Fuego, 1907, 17 (habits).—Reiser, Denkw. Mat.-Nat. Akad. Wiss. Wien, 1910, 91 (Joazeiro, etc., ne. Brazil).—Grant, Ibis, 1911, 332 (Ajo, s. Argentina).—Brabourne and Chubb, Birds South Amer., i, 1912, 73.—Reichenow, Die Vögel, i, 1913, 409.—Stone, Rep. Princeton Univ. Exped. Patagonia, ii, pt. 4, 1915, 661 (syn.; descr.; habits).—Cherrie, Brooklyn Inst. Sci. Bull., ii, 1916, 347 (Orinoco River up to mouth of Apure River; food; fresh colors of unfeathered parts).—Chubb, Birds Brit. Guiana, i, 1916, 276 (habits); Ibis, 1919, 289, part (Chosica, Peru; Aulagas, Bolivia).—Daguerre, El Hornero, ii, 1922, 266 (Rosas, Argentina).—Pereyra, El Hornero, iii, 1923, 165 (Buenos Aires, Argentina).—Snethlage, Journ. für Orn., lxxvi, 1928, 554, 572 (eggs; breeding season in var. South American countries).—Young, Ibis, 1929, 14 (coast of British Guiana).

Falco (Hypotriorchis) *fusco-caerulescens* Bertoni, Fauna Paraguaya, 1913, 43 (Paraguay).

Falco fusco-coerulescens fusco-coerulescens Todd, Proc. Biol. Soc. Washington, xxix, 1916, 98, in text.—Hellmayr, Nov. Zool., xxviii, 1921, 187 (crit. on *Falco femoralis* Lafresnaye and d'Orbigny); Field Mus. Nat. Hist., zool. ser., xix, 1932, 283 (Chile; syn.).—Todd and Carriker, Ann. Carnegie Mus., xiv, 1922, 160 (Mamatoco, Santa Marta, Colombia; crit.; meas.).—Miller, Auk, lxiv, 1947, 355 (Colombia; Upper Magdalena River).

Falco fusco-caerulescens fusco-caerulescens Swann, Synopt. List Accip., pt. 4, 1920, 139, part.—Wetmore, U. S. Nat. Mus. Bull. 133, 1926, 103 (Argentina; crit.).—Snethlage, Journ. für Orn., lxxvi, 1928, 677 (breeding habits; ne. Brazil).—Hellmayr, Publ. Field Mus. Nat. Hist., zool. ser., xii, No. 18, 1929, 455 (Parnaguá and the lower Parnahyba River, Brazil).—Naumburg, Bull. Amer. Mus. Nat. Hist., lx, 1930, 13 (crit.; distr. in Matto Grosso, Brazil).—Darlington, Bull. Mus. Comp. Zool., lxxi, 1931, 368 (near Río Frío, Magdalena, Colombia).—Peters, Check-list Birds of World, i, 1931, 294.—Roberts, Trop. Agr., xi, No. 4, 1934, 6 (Trinidad).—Griscom, Bull. Mus. Comp. Zool., lxxviii, 1935, 302 (Agua Dulce, Panama).—Dugand, Rev. Acad. Colomb., iii, 1940, 221 (Colombia to Tierra del Fuego).

Hypotriorchis fuscocaerulescens Gurney, List Diurn. Birds Prey, 1884, 103, part; Cat. Birds Prey, 1894, 29, part.—Berlepsch and Hartert, Nov. Zool., ix, 1902, 115 (Altagracia, Caicara, and Ciudad Bolívar, Venezuela; food, fresh colors of unfeathered parts).—Berlepsch and Stolzmann, Proc. Zool. Soc. London, 1902, 43 (Ingapirca and Piriayacu, c. Peru); Ornis, xiii, 1906, 130 (Pichacani, Peru).—Ihering, Rev. Mus. Paulista, vi, 1904, 339 (Paraguay).—Hellmayr, Abh. K. B. Akad. Wiss., Kl. II, xxii, No. 3, 1905, 573 (crit. as to *Falco femoralis* Spix).—Ihering and Ihering, Av. Brazil, 1907, 98 (Goyaz; Matto Grosso; Minas Gerais; São Paulo, Rio de Janeiro; Pará).—Berlepsch, Nov. Zool., xv, 1908, 294 (Cayenne).—Hartert and Venturi, Nov. Zool., xvi, 1909, 240 (Tucumán, Argentina).—Dabbene, Orn. Argent., 1910, 249 (Tierra del Fuego, Patagonia, etc.).—Menegaux, Rev. Franç. Orn., ix, 1925, 285 (Chaco, Argentina).

Hypotriorchis fusco-coerulescens Berlepsch, Journ. für Orn., 1887, 123 (Paraguay).

Aesalon fusco-caerulescens Heine and Reichenow, Nom. Mus. Heine. Orn., 1890, 261, part (Brazil; Chile).

Rhynchofalco fusco-caerulescens fusco-caerulescens Swann, Synopt. Accip., pt. 4, 1922, 210 (Argentina, Patagonia, and Tierra del Fuego).

Hypotriorchis fusco-caeruleus Gurney, Ibis, 1882, 158, in text.

Falco thoracicus "Illiger," Lichtenstein, Verz. Doubl. Berlin Mus., 1823, 62 (Paraguay).

Subgenus Aesalon Kaup

Small falcons (wing about 186–231 mm.) with length of cere on top equal to less than one-third the length (curve) of culmen; depth of bill at base less than one-third the distance from nostril to tip of maxilla; distance from bend of wing to tip of longest primary covert little, if any, less than distance from latter point to tip of longest primary; basal phalanx of middle toe without transverse scutella, sexes totally unlike in coloration, and young similar to adult female.

Bill moderate in size, its depth at base of rhamphotheca slightly greater than its width at same point and very slightly less than distance from anterior margin of cere (in front of nostril) to tip of maxilla; culmen regularly decurved from base, distinctly but not sharply ridged; gonys rather strongly convex, ascending terminally, very indistinctly (if at all) ridged; maxillary tomium with "tooth" very prominent, the maxillary unguis rather slender, compressed. Nostril moderate in size, nearly circular. Wing long and pointed, the longest primary exceeding distal secondary by about half the length of wing or slightly less; second, second and third, or third primary (from outside) longest, the first (outermost) not longer (usually shorter) than fourth; inner webs of first and second primary emarginated, the emargination on first nearly opposite tip of sixth primary, that on second between tips of third and fourth or fourth and fifth primaries; outer webs of second and third primaries slightly sinuated. Tail about three-fifths as long as wing, slightly but distinctly rounded, the rectrices (12) moderately rigid, not tapering terminally. Tarsus longer than middle toe without claw (about equal in length to middle toe with claw), the upper portion feathered in front for about one-third its length or slightly more, elsewhere covered with small hexagonal scales, these larger on acrotarsium, especially along inner side, where much larger, decidedly transverse, and arranged in a single longitudinal series, the extreme lower portion of acrotarsium with several frontal transverse scutella; outer toe, without claw, extending about to penultimate articulation of middle toe, the inner toe (without claw) falling short of same point.

Plumage and coloration.—Plumage compact though rather soft, the primaries and rectrices not very rigid; orbital region quite bare. Sexes conspicuously unlike in adult stage. Adult males bluish gray above with black shaft streaks, interrupted by a band of whitish,

buffy, or ochraceous spots across lower hindneck, the tail with a broad subterminal band of black; primaries black, their inner webs with whitish transverse spots; underparts whitish to deep buff, longitudinally streaked or striped with brown. Adult females brown above, the tail usually with a greater or less number of narrow bands of lighter color. Young (of both sexes) similar to adult females, but darker or else tinged above with ochraceous or rusty.

Range.—Northern Hemisphere, migrating, more or less, to Southern Hemisphere. (Two species.)

FALCO COLUMBARIUS COLUMBARIUS Linnaeus

Eastern Pigeon Hawk

Adult male.—Forehead, crown, occiput, scapulars, interscapulars, upper back, lesser and median upper wing coverts slate to blackish slate, becoming lighter to slate gray on the greater upper wing coverts, outer webs of the inner secondaries, the lower back, rump, and upper tail coverts, each feather with a distinct black shaft stripe; feathers of the nape whitish washed with pinkish buff to pale cinnamon, broadly tipped with slate to blackish slate, producing a mottled nuchal band; feathers of the forehead and of the lateral edges of the crown grayish white to pale cinnamon-buff, forming an indistinct frontal line and a (usually) fairly definite superciliary stripe on either side; primaries and outer secondaries fuscous-black to chaetura black crossed to the inner edge by fairly broad white bars or at least transverse spots on the inner web (the outermost primary with 7–8 such white marks); third primary from outside the longest, then the second, fourth, and first, the two outermost ones abruptly incised on the inner edges, the second and third sinuated on the outer web; rectrices same color as the lower back and rump, tipped with white, very broadly (25–35 mm.) subterminally banded with black, anterior to which are three or four somewhat irregular but fairly complete narrower bands of the same (5–12 mm. wide), these bands generally broadening along the shaft, and often becoming conterminous in a shaft stripe of the same; lores whitish with fine blackish hairlike plumes; cheeks and auriculars whitish, more or less washed with pale cartridge buff to pale cinnamon, the individual feathers with black shaft stripes, producing a finely streaked appearance; chin and upper throat white to pale cartridge buff to very pale pinkish buff, either immaculate or with very fine dusky terminal shaft streaks; lower throat, breast, sides, flanks, and abdomen similar, but more heavily tinged with cinnamon and with broad fuscous shaft streaks, widest on the flanks where they sometimes broaden into two or three incomplete bars on each feather; thighs, lower abdomen, and under tail coverts more intensely tinged with pinkish cinnamon, especially the thighs, which are sometimes

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quite bright pinkish cinnamon, with blackish shaft stripes much narrower than those of the breast and upper abdomen; under wing coverts whitish somewhat washed with tawny, with narrow chaetura drab shaft streaks and two or three broad deep chaetura drab transverse bars, breaking up the white into spots; eyelid greenish yellow to deep yellow; cere greenish yellow; bill bluish, tinged with greenish at base, darker at tip; iris very dark brown; tarsi and toes wax yellow to deep cadmium; claws black.

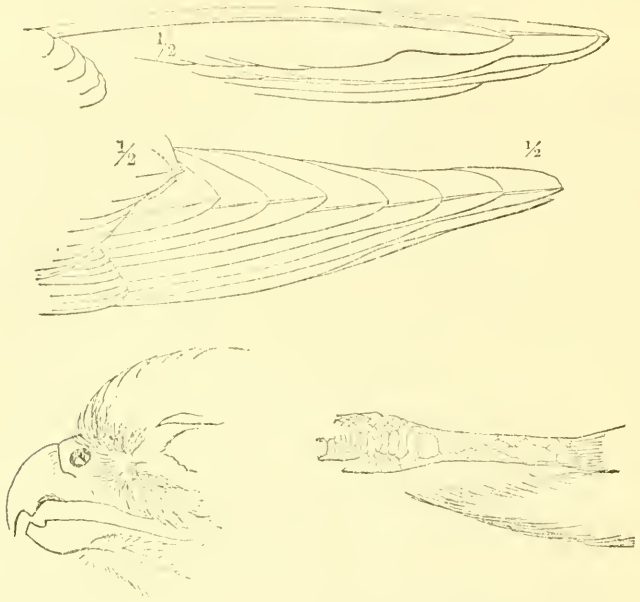

FIGURE 50.—*Falco* (*Aesalon*) *columbarius*.

Adult female.—Similar to the adult male, but top of head, occiput, upper wing coverts, scapulars, interscapulars, and upper back heavily washed with chaetura drab, which almost obliterates the slate color; lower back, rump, and upper tail coverts more like that of the male, only very slightly washed with chaetura drab; the pale bars or transverse spots on the inner webs of the remiges washed with pinkish buff to very pale pinkish cinnamon, and generally larger than those in the male; pale bands on the rectrices whitish more or less tinged with pale pinkish buff on all but the median pair, those of the median pair washed with pale neutral gray; the thighs less washed with pinkish cinnamon, not sharply different in tone from the abdomen and breast; sides of head averaging more heavily washed with pinkish buff than in males; eyelids and cere clear pale gamboge; iris and bill as in male; tarsi and toes medium cadmium; claws black.

Juvenal (sexes alike).—Similar to the adult female, but browner above, no trace of slate color anywhere, the entire upperparts being dark sepia to fuscous, the crown and occiput in particular being sepia rather than fuscous, the feathers of these parts with conspicuous narrow black shaft stripes; scapulars, interscapulars, upper back with narrow tawny chestnut edges to the feathers; nuchal band generally broader and more pinkish buffy than in adult females; the pale markings on the remiges deeper, ochraceous-buff to ochraceous-salmon; entire underparts washed with pale cinnamon-buff; eyelids and cere pale greenish yellow; iris dark brown; bill bluish, black at tip and tinged with greenish at base; tarsi and toes light chrome to medium cadmium.

Natal down.—Pale smoke gray on upper surface of head, body, and wings; white on under surface of body; sides of head bare.

Adult male.—Wing 182–200 (188.9); tail 114–128 (121.0); culmen from cere 11–13 (12.5); tarsus 35–41 (38.3); middle toe without claw 29–31 (29.8) mm.[58]

Adult female.—Wing 192.5–215 (207.8); tail 120–140 (133.6); culmen from cere 13.5–15 (14.2); tarsus 38–43 (40.4); middle toe without claw 30–35 (32.6 mm.).[59]

Range.—Breeds from the northern limit of trees in eastern Canada from northern Manitoba (Churchill); northern Ontario (Fort Severn); northern Quebec (Fort Chimo, Minguin Island, Whale River); Newfoundland Labrador (Cape Chidley, Battle Harbor, Groswater Bay, Henley Harbor, Long Tickle, Angutausugevik, Okkak, Nain, Makkovik); Newfoundland; Nova Scotia; New Brunswick; to Maine (where a rare summer resident, no definite breeding records, but probable breeders reported from Hancock, Oxford, Franklin, Somerset, and Waldo); New Hampshire (Manchester); Vermont (doubtful summer records); northern New York in the mountains (Phelps, Naples, Middleville); northern Michigan (Porcupine Mountains); northern Wisconsin (Outer Island); southern Manitoba (Winnipeg, Assinboine Valley at Brandon, Qu'Appelle Valley); west in general to the eastern edge of the Great Plains—eastern Minnesota and Iowa (Grinnell).

Migrates across eastern United States (New England, New York, Ohio, Indiana, Illinois, Michigan, etc.), south to the Gulf States and to Mexico; also to Bermuda.

Winters from the Gulf States—Florida (Fruitland Park, Cedar Keys, New Smyrna, De Land, Cape Romano, Miakka, Punta Gorda);

[58] Twenty-eight specimens from Ungava, Wisconsin, New York, New Jersey, District of Columbia, Florida, Bahamas, and Haiti.

[59] Thirty-two specimens from Ungava, Wisconsin, New York, Pennsylvania, Illinois, Virginia, Florida, Cuba, and Guadeloupe Island, West Indies.

Alabama (Montgomery, Autaugaville, Dothan, Anniston); Louisiana (New Orleans); southern Texas (Brownsville); south through Mexico (Chietla, Puebla; San Diego; Chihuahua; Presidio de Mazatlán, Sinaloa; Tres Marías Islands; Tepic; Plains of Colima; Valley of Mexico; Orizaba, Veracruz; Nugeres and Cozumel Islands, Yucatán); Honduras (Ruatan Island); Nicaragua (Chinandaga); Costa Rica (San José); Panama (Lion Hill, Chiriquí, Calobre); Colombia (Bogotá); northern Venezuela (Maruria, Culata, Lake Valencia, Altagracia, Caicara); Trinidad; Tobago; to Ecuador (Esmeraldas, Pintag, Chañar, Carapungo, Chaupicruz, Zambiza, Pomasqui, Quito, Cuenca); and northern Peru (Trujillo); also the West Indies: Bahamas (New Providence, Andros, Watling Island, Abaco, Green Cay); Cuba; Isle of Pines; Jamaica (Spanish Town); Haiti (Cayemite Island, Moustique, Puerto Plata, Samaná Bay, Arroyo Savanna, ? Gonave Island, Laguna de Haina, Monte Cristi, La Vega, Loma Rucillo, Trujin, Lopez, Moca, Moline, Grande Cayemite Island, L'Atalye); Puerto Rico (rare winter visitant; Quebradillas, Cartagena Lagoon, Laguna de Guanica, Hacienda Catalina, Mayagüez, Sabana Grande, La Plata, Fajardo); St. Thomas; Virgin Gorda; Anguilla; St. Croix; Antigua; Guadeloupe; Martinique; Dominica; Barbados; St. Vincent; Carriacou, Grenada.[60]

Casual in winter north to Nebraska, Iowa, Illinois, Indiana, Ohio, southern Ontario, southern Quebec, and New England.

Type locality.—America=Carolina, *ex* Catesby.

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[60] There is a possibility that some of the records on which these localities are listed may turn out, on examination of the specimens, to refer to *F. c. bendirei*, as that form has been taken in some of the West Indian islands.

New York, ii, 1844, 15, pl. 4, fig. 9.—Giraud, Birds Long Island, 1844, 17.—Gosse, Birds Jamaica, 1847, 17.—Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).—Hurdis, *in* Jardine's Contr. Orn., 1850, 6 (Bermuda).—Kaup, *in* Jardine's Contr. Orn., 1850, 54.—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix 1858, 9, part.—Baird, North Amer. Birds, 1859, No. 7, part.—Bland, Ann. Rep. Smiths. Inst. for 1858 (1859), 286 (Bermuda).—Martens, Journ. für Orn., viii, 1859, 212 (Bermuda).—Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 19, part (monogr.); No. 36, livr. 10, 1873, 37, part.—Dresser, Ibis, 1865, 323 (s. Texas; breeding on Medina River).—Sclater and Salvin, Proc. Zool. Soc. London, 1869, 252 (Maruria and Lake Velencia, Venezuela).—Sundevall, Öfv. Vet.-Akad. Förh., 1869, 601 (Porto Rico).—Finsch, Proc. Zool. Soc. London, 1870, 556 (Trinidad; crit.).—Coues, Key North Amer. Birds, 1872, 214, part; Check List North Amer. Birds, 1873, No. 344; ed. 2, 1882, No. 505, part; Key North Amer. Birds, ed. 2, 1884, 536, part.—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 50 (Minnesota; not abund.; summer res.); Notes Birds Minnesota, 1892, 200, 456 (Minnesota; rare; 3 specs.; descr.).—Ridgway, Ann. Lyc. Nat. Hist. New York, x, 1874, 379 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 325 (lower Wabash Valley, "irregularly resident"); Orn. 40th Parallel, 1877, 578 (Truckee Meadows, Nev.); Bull. Nuttall Orn. Club, vii, 1882, 255 (Amherst Island, Gulf of St. Lawrence, breeding; descr. nest and eggs); Man. North Amer. Birds, 1887, 250, part; Proc. U. S. Nat. Mus., x, 1888, 577 (Swan Island, Caribbean Sea, Apr. 14); Orn. Illinois, i, 1889, 435.—Sharpe, Cat. Birds Brit. Mus., i, 1874, 408, part (Quebec; Fort Good Hope; off Malpelo Island, at sea, lat. 13° 22′ N., long. 102° 4′ W.); Hand-list, i, 1899, 275, part.—Boies, Cat. Birds Southern Michigan, 1875, No. 134 (s. Michigan; res.).—Gibbs, U. S. Geol. and Geogr. Surv. Terr. Bull. 5, No. 3, 1879, 490 (Michigan; breeds; not common).—Newton and Newton, Handb. Jamaica, 1881, 110.—Wheaton, Rep. Birds Ohio, 1882, 424 (Ohio; descr.; distr.; habits).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 170 (Mexico; common names).—Reid, U. S. Nat. Mus. Bull. 25, 1884, 219 (Bermuda, frequent).—Cory, Birds Haiti and San Domingo, 1885, 123; List Birds West Indies, 1885, and rev. ed., 1886, 22, part; Auk, iv, 1887, 43, part (West Indian references and localities), 96 (Martinique); vii, 1890, 375 (Virgin Gorda); viii, 1891, 48 (St. Christopher), 334 (Abaco Island, April), 337 (Watling Island, March), 339 (Green Cay, April); Birds West Indies, 1889, 201; Cat. West Indian Birds, 1892, 99 (Abaco, Andros, and Watling Islands, Bahamas; Cuba, Isle of Pines, Jamaica, Haiti, Puerto Rico, St. Thomas, and Virgin Gorda, Greater Antilles; St. Christopher and Grenada, Lesser Antilles); Publ. Field Mus. Nat. Hist., No. 131, 1909, 479, part (Illinois and Wisconsin).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 357; ed., 3 1910, 165.—? Ferrari-Perez, Proc. U. S. Nat. Mus., xvi, 1886, 168 (Puebla and Chietla, Puebla, Dec.).—Wells, Proc. U. S. Nat. Mus., ix, 1887, 622 (Grenada, winter); Auk, xix, 1902, 344 (Carriacou, Lesser Antilles, migr.).—Stearns, Bird Life Labrador (ca. 1890), 45 (Labrador; records).—Thompson, Proc. U. S. Nat. Mus., xiii, 1890, 536 (Winnipeg, etc., Manitoba; summer res.; habits).—Goss, Hist. Birds Kansas, 1891, 284 (Kansas; rare migr.; spec.; habits).—Scott, Auk, ix, 1892, 127 (Jamaica; res.).—Cherrie, Auk, ix, 1892, 328 (San José, Costa Rica, Dec. 4); Bull. Brooklyn Inst. Sci., ii, 1916, 348 (Altagracia and Caicara, Venezuela; food).—Tippenhauer, Die Insel Haiti, 1892, 322 (Haiti).—Verrill, Trans. Connecticut Acad. Sci., viii, 1892, 325 (Dominica; breeding:

habits; descr. nest and eggs).—Fisher, Hawks and Owls United States, 1893, 109, pl. 16.—Nutting, Bull. Iowa State Lab. Nat. Hist., ii, 1893, 269 (lower Saskatchewan River; spec.).—Beristain and Laurencio, Mem. y Rev. Soc. Cient. "Antonio Alzate," vii, 1894, 223 (Mexico; listed).—Chapman, Bull. Amer. Mus. Nat. Hist., vi, 1894, 72 (Trinidad).—Trowbridge, Auk, xii, 1895, 266 (Connecticut, breeding).—Cooke, Birds Colorado, 1897, 76 (breeding from plains to 9,000 feet).—Lantz, Trans. Kansas Acad. Sci., 1896-97 (1899), 256 (Kansas; uncommon).—Dalmas, Soc. Zool. France, xiii, 1900, 132 (Tobago).—Nash, Check List Birds Ontario, 1900, 30 (Ontario; common migr.; breeds in n. part); Check List Vert. Ontario: Birds, 1905, 42 (Ontario).—Salvadori and Festa, Bol. Mus. Zool. Torino, xv, 1900, 31 (Chañar, c. Ecuador, Oct.).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 119, part (Chietla, Puebla; San Diego, Chihuahua; Presidio de Mazatlán, Sinaloa; Tres Marías Islands; Tepic; plains of Colima; Valley of Mexico; Orizaba, Veracruz; Mugeres and Cozumel Islands, Yucatán; Ruatan Island, Honduras; Chinandega, Nicaragua; San José, Costa Rica; Chiriquí, Calobre, and Lion Hill, Panama; Colombia; Venezuela; Swan Island, Caribbean Sea).—Allen, Proc. Manchester Inst. Arts and Sci., iv, 1902, 103 (New Hampshire, rare spring and fall migr.).—Bailey, Handbook Birds Western United States, 1902, 168 (descr.; distr.).—Dawson, Birds Ohio, 1903, 390, 653 (Ohio; descr.; distr.; migr.).—Jones, Birds Ohio, rev. cat., 1903, 98 (Ohio; rare migr. and winter; habits).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 66, part (Wisconsin; habits).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 213 (Essex County, Mass.); No. 5, 1920, 108 (Essex County, Mass.).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 192 (Cambridge, Mass.; occas.).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 256 (Iowa, rare breeder, common migr.).—Widmann, Birds Missouri, 1907, 103 (rare trans.; a few winter).—Stone, Birds New Jersey, 1908, 167 (New Jersey; stat.; descr.); Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama: Canal Zone).—Knight, Birds Maine, 1908, 244 (rare summer res.).—? Lowe, Ibis, 1909, 334 (Swan Island, Jan.); 1911, 148 (Grand Cayman, Jan.; Little Cayman, Feb.).—Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, lxi, 1909, 358 (Miranda, Santo Domingo).—Brown, Auk, xxvii, 1910, 207 (Portland, Maine, Feb. 26, 1910).—Sclater, Rev. List Birds Jamaica, 1910, 13 ("resident").—Norton, Auk, xxvii, 1910, 207 (Portland, Maine, Dec. 30, 1905, Dec. 11, 1908; Westbrook, Maine, Dec. 1, 1906, Scarborough, Maine, Feb. 22, 1907).—Wayne, Birds South Carolina, 1910, 78, part (common fall, rare spring, migr. on coast).—Zimmer, Proc. Nebraska Orn. Union, v, pt. 2, 1911, 21 (Dawes County, Nebr.); v, pt. 5, 1913, 74 (Thomas County Forest Reserve, Nebr.).—Brabourne and Chubb, Birds South Amer., i, 1912, 73 (Venezuela; Trinidad).—Reichenow, Die Vögel, i, 1913, 409.—Chubb, Ibis, 1919, 290 (Trujillo, nw. Peru, Dec.).—Lönnberg and Rendahl, Ark. Zool., xiv, No. 25, 1922, 42 (Carapungo, Chaupicruz, Zambiza, Pomasqui, and Quito, Ecuador, Aug. 10-May 10).—Griscom, Birds New York City Region, 1923, 197 (status).—Johnston, Birds West Virginia, 1923, 88 (West Virginia).—Naumburg, Auk, xliii, 1926, 487 (winter; Ecuador and Venezuela).—Hantszch, Can. Field Nat., xlii, 1928, 31 (ne. Labrador; breeds).—Sturgis, Field Book of Birds of Panama Canal Zone, 1928, 143 (Canal Zone; descr.).—Wood, Auk, xlvi, 1929, 113 (near Muskegon; Point Lookout, Arenac County, Mich.).—Sprunt, Auk, xlviii, 1931, 266, in text (winter, South Carolina coast).—Harrold, Wils. Bull., lxv, 1933, 19, in text (Saskatchewan; 1 record).—Taverner, Birds Canada, 1934, 147 (Canada; genl.); Can. Water

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Hypotriorchis columbarius Gray, Gen. Birds, i, 1844, 20, part; List Spec. Brit. Mus., pt. 1, Accip., ed. 2, 1848, 55 (Quebec; Jamaica); Hand-list, i, 1869 21, No. 193, part.—Bonaparte, Consp. Gen. Av., i, 1850, 26, part.—Barry, Proc. Boston Soc. Nat. Hist., 1854, 2 (Wisconsin; common).—Cabanis, Journ. für Orn., 1854, p. lxxxiv (Cuba).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, 1855, 278, footnote (Tamaulipas).—Brewer, North Amer. Ool., i, 1857, 12, pl. 3, fig. 35, part; Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Sclater, Proc. Zool. Soc. London, 1858, 450 (Cuenca, Ecuador); 1861, 79 (Jamaica).—Bryant, Proc. Boston Soc. Nat. Hist., vi, 1857, 115 (Nova Scotia).—Baird, Cat. North Amer. Birds, 1859, No. 7, part.—Gundlach, Journ. für Orn., 1861, 322 (Cuba), 403 (Cuba); Físico-Nat. Cuba, i, 1865–66, 225; Journ. fur Orn., 1871, 372 (Cuba); Cat. Aves Cubana, Anal. Soc. Esp. Hist. Nat., ii, 1873, 101 (Cuba); Journ. für Orn., 1874, 310 (Puerto Rico); Contr. Orn. Cubana, 1876, 47; Anal. Soc. Esp. Hist. Nat., vii, 1878, 162 (Puerto Rico); Journ. für Orn., 1878, 158, 163 (Puerto Rico); Orn. Cubana, 1895, 29.—Albrecht, Journ. für Orn., 1862, 203 (Jamaica).—March, Proc. Acad. Nat. Sci. Philadelphia, xv, 1863, 152 (Jamaica, res., breeding).—Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1866, 280 (vicinity New York City); ix, 1868, 134 (San José, Costa Rica); Mem. Boston Soc. Nat. Hist., ii, 1874, 300 (Mazatlán, Sinaloa; ?Tres Marias Islands; habits).—Frantzius, Journ. für Orn., 1869, 369 (Costa Rica).—Léotaud, Ois. Trinidad, 1866, 26.—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 146, part (diagn.).—Salvin, Proc. Zool. Soc. London, 1870, 215 (Calobre and Volcán de Chiriquí, Panama); Ibis, 1889, 375 (Mugeres and Cozumel islands, Yucatán; Ruatan Island, Honduras).—Sclater and Salvin, Proc. Zool. Soc. London, 1870, 838 (coast Honduras); Nom. Av. Neotr., 1873, 121, part; Proc. Zool. Soc. London, 1879, 541 (Medellín, Antioquia, Colombia).—Stahl, Ornis, iii, 1887, 450 (Puerto Rico).—Christy, Ibis, 1897, 335 (Samaná Bay, Santo Domingo).—Berlepsch and Hartert, Nov. Zool., ix, 1902, 115 (Altagracia and Caicara, Venezuela; food).

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Falco aesalon β noveboracensis Gmelin, Syst. Nat., i, pt. 1, 1788, 284 (New York; based on *New York Merlin* Latham, Synop. Birds, i, 1781, 107).

Falco intermixtus Daudin, Traité d'Orn., ii, 1800, 141 (Carolina).—Latham, Gen. Hist. Birds, i, 1821, 136.

Falco doliatus Shaw, Gen. Zool., vii, 1809, 206 (Carolina).

Falco temerarius Audubon, Orn. Biogr., i, 1831, 381, pl. 75 (near Flatland Ford, Pa.); v, 1839, 368; Birds Amer., fol. ed., pls. 75, 92.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 61.

Falco auduboni Blackwell, Res. Zool., 1834, 193, ed. 2, 1873, 178 (spec. sent from Philadelphia).

Falco columbarius richardsoni Grey, Condor, xxvii, 1925, 37, text (San Diego, Calif.).

FALCO COLUMBARIUS BENDIREI Swann

Western Pigeon Hawk

Adult male.—Intermediate between that of *Falco columbarius columbarius* and *Falco columbarius richardsonii;* crown, occiput, interscapulars, scapulars, and upper wing coverts deep neutral gray to slate, paling on the lower back, rump, upper tail coverts, and inner secondaries to neutral gray and to light neutral gray, and each feather with a black shaft stripe; rectrices as in the nominate race, but the three narrow black bands (anterior to the broad subterminal one) usually narrower than, or equal to the pale gray interspaces in width, whereas in *columbarius* they are usually wider than the gray interspaces; underparts as in *columbarius,* but the streaks averaging paler, sepia, not fuscous; soft parts as in *columbarius.*

Adult female.—Intermediate between that of *Falco columbarius columbarius* and *Falco columbarius richardsonii,* but with more and paler chaetura drab, less slate; below generally more whitish than *columbarius,* the dark streaks paler, sepia with blackish shaft lines; thighs more ochraceous buff.

Juvenal (sexes alike).—Practically indistinguishable from that of *Falco columbarius columbarius* averaging (in series) very slightly paler and usually with the nuchal collar more heavily washed with ochraceous buff.

Natal down.—As in the nominate race.

Adult male.—Wing 177–198 (190.9); tail 118–130 (124.5); culmen from cere 11.5–13 (12.2); tarsus 35–40 (38.7); middle toe without claw 29–31 (30.1 mm.).[61]

Adult female.—Wing 207–215 (210); tail 135–146 (140.7); culmen from cere 14–15 (14.4); tarsus 39–45 (41.4); middle toe without claw 32–35 (31 mm.).[62]

Range.—Breeds from northwestern Alaska (Savage, Nulato, Circle, Kcowak River, St. Michael, Demarcation Point, Taku River, Kuiu Island, Thomas Bay, McKinley Park, Yukon River, Cook Inlet, Kodiak Island, Lake Alekmagik, Eagle, Chelitna River, Juneau, Lake

[61] 25 specimens from Alaska, Northwest Territories, Mackenzie, Oregon, Wyoming, California, New Mexico, Arizona, northern Mexico (Mazatlán and Tamaulipas), Florida, Bahamas, Nicaragua, and Swan Island.

[62] 16 specimens from Alaska, Mackenzie, Alberta, Oregon, Idaho, California, Texas, New Mexico, and Lower California.

Iliamna, Unalaska, Stikine Valley); Northwest Territories (Anoik, Old Crow River, Great Bear Lake, Hill River, Great Slave Lake, Fort Rae, Fort Simpson, Fort Providence, Fort Resolution); to British Columbia (east of the Cascades and coast ranges—Cascade, Atlin, Thudade Lake); Alberta (Lake Athabaska, Fort McMurray); northern Saskatchewan (Lake Athabaska); south in the mountains through Washington (east of the Cascades) and Oregon (Fremont) to Montana (Flathead Lake) and probably to Idaho.

Migrates across western and south central to southeastern United States to its winter quarters. Much less common in the East than in the West. (Recorded as a migrant from Idaho, Oregon, Montana, Washington, Oregon, Utah, Wyoming, Nevada, Arizona, New Mexico, east to Wisconsin.)

Winters from California (Stockton, Calipatria, Petaluna, Santa Clara, etc.); Nevada (Truckee Meadows); New Mexico (Pecos River, Shiprock, Tularosa, Albuquerque, Silver City, etc.); Colorado; Texas (Comstock); south to Baja California (La Paz, San José del Cabo, Santiago, Santo Domingo, San Ramón, El Valle de la Trinidad, San Ignacio) and northern Mexico (Tamaulipas—Matamoros and Camargo; Sinaloa—Mazatlán, Tres Marías Islands). Casual in winter to Louisiana; Florida (Key West, Tortugas Keys); South Carolina (Mount Pleasant); the Bahamas (Abaco, New Providence); ? Jamaica; ? Grenada; and ? Swan Island.

Type locality.—Fort Walla Walla, Wash.

Falco columbarius (not of Linnaeus 1758) Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 35, part (Great Bear Lake).—Audubon, Orn. Biog., Philadelphia ed., i, 1831, 466, pl. 92, part; v, 1839, 368, part; Synopsis, 1839, 16, part; Birds Amer., 8vo ed., i, 1840, 88, pl. 21, part.—Nuttall, Man. Orn. United States and Canada, Land Birds, 1832, 60, part; ed. 2, 1840, 60, part.—Gambell, Journ. Acad. Nat. Sci. Philadelphia, i, 1847, 27 (coast of upper California); Arch. für Naturg., 1848, 87 (upper California).—Heermann, Journ. Acad. Nat. Sci. Philadelphia, ser. 2, ii, 1853, 260 (common, California).—Cassin, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 9, part.—Baird, Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 3 (El Paso, Tex.; Colorado River, Calif.).—Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, pt. 3, 1860, 142, part (California in Oct. and Nov.).—Schlegel, Mus. Pays-Bas, ii, No. 2, livr. 1, 1862, 19, part (monogr.); No. 36, livr. 10, 1873, 37, part.—Blakiston, Ibis, 1863, 43 (nw. Canada; descr. nest).—Cooper, Orn. California, Land Birds, 1870, 460.—Coues, Key North Amer. Birds, 1872, 214, part; Check List North Amer. Birds, 1873, No. 344, part; Birds Northwest, 1874, 345, part; Check List North Amer. Birds, ed. 2, 1882, No. 505, part; Key North Amer. Birds, ed. 2, 1884, 536, part.—Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado); vii, 1875. 10 (w. Nevada; summer), 13 (Carson, Nev.; winter), 38 (Nevada, breeding); Orn. 40th Parallel, 1877, 578 (Truckee Meadows, Nev.); Man. North Amer. Birds, 1887, 250, part; Proc. U. S. Nat. Mus., xvi, 1893, 664 (Kodiak Island, Alaska, Aug. 15).—Allen, Proc. Boston Soc. Nat. Hist., xvii, 1874, 34 (Montana and Dakota; Yellowstone and Heart Rivers).—Sharpe, Cat. Birds Brit. Mus., i, 1874, 408, part (Fort Simpson);

Hand-list, i, 1899, 275, part.—Cory, List Birds West Indies, 1885, and rev. ed., 1886, 22, part; Auk, iv, 1887, 43, part (West Indian references and localities); Publ. Field Mus. Nat. Hist. No. 131, 1909, 479, part (Wisconsin, part).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 357, part.—Townsend, Auk, iv, 1887, 12 (Kowak River, nw. Alaska; breeding); Cruise *Corwin* in 1885 (1887), 92 (Kowak River; breeding).—Bryant, Proc. California Acad. Sci., ser. 2, ii, 1889, 281 (La Paz, Lower California).—Chapman, Bull. Amer. Mus. Nat. Hist., iii, 1890, 135 (Vancouver Island).—Macfarlane, Proc. U. S. Nat. Mus., xiv, 1891, 435 (breeding along Anderson River, Mackenzie, nearly to Arctic coast; habits).—Cooke, Colorado State Agr. Coll. Bull. 37, 1897, 76 (Colorado; uncommon res.; common migr.).—Grinnell, Pacific Coast Avif., No. 1, 1900, 37, 76 (Kotzebue Sound, Alaska; common; young).—McGregor, Pacific Coast Avif., No. 2, 1901, 7 (California; Santa Cruz County).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 119, part (Hermosilla, Sonora; ? San Diego, Chihuahua; Mazatlán, Sinaloa; Tres Marías Islands, Mexico).—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 89 (San José del Cabo and Santiago, Lower California, Sept. 17–Nov. 17).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 35 (Oregon).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 66, part (Wisconsin, part).—Swarth, Pacific Coast Avif., No. 4, 1904, 7 (Huachuca Mountains, Ariz.).—Dawson and Bowles, Birds of Washington, ii, 1909, 534 (habits; distr.; descr.).—Wayne, Birds South Carolina, 1910, 78, part (migrant, South Carolina).—Sclater, Hist. Birds Colorado, 1912, 188 (Colorado; not common; chiefly migr.; few breed.; few winter).—Grinnell, Proc. California Acad. Sci., ser. 4, xiii, No. 5, 1923, 64 (Furnace Creek Ranch, Death Valley, Calif.).—Taverner, Birds Western Canada, 1926, 208 (fig.; descr.; habits; w. Canada); Nat. Mus. Canada Bull. 50, 1928, 93 (near Belvedere, Alberta; spec.).—Laing and Taverner, Nat. Mus. Canada Ann. Rep. for 1927 (1929), 80 (Chitina River region, Alaska; rec.; young; specimens).—Willett, Pacific Coast Avif., No. 21, 1933, 47.—Miller, Condor, xxxvii, 1935, 77, in text (McKittrick, Calif.; Pleistocene specimens).—Grinnell and Linsdale, Vert. Anim. Point Lobos Reserve, 1936, 39, 57 (Point Lobos, Calif.; 1 record).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; 2 records).—Bond, Condor, xli, 1939, 55, in text (Tule Lake region, Calif.; 1 record).—Cowan, Occ. Pap. British Columbia Prov. Mus., No. 1, 1939, 26 (Peace River district, Brit. Columbia; 2 records).—Clarke, Nat. Mus. Canada Bull. 96, 1940, 48 (Thelon Game Sanctuary, nw. Canada).—Hand, Condor, xliii, 1941, 225 (St. Joe National Forest, Idaho).—Dixon, Condor, xlv, 1943, 207 (Kings Canyon National Park, Calif.).—Gerow, Murrelet, xxiv, 1943, 11 (Grant County, Wash.; captured horned lark in light from auto).—Munro, Can. Journ. Res., D, xxiii, 1945, 57 (Cariboo Parklands, Brit. Columbia; occas. migr.).—Murie, Condor, xlviii, 1946, 254 (Alaska, Mount McKinley National Park; nesting).—Taber, Condor, xlviii, 1946, 275 (Alaska, Adak winter).

Falso columbarius Shortt, Contr. Roy. Ontario Mus. Zool., xvii, 1939, 12 (Yakutat Bay, Alaska; 1 rec.).

Falco columbarius columbarius Grinnell, Pacific Coast Avif., No. 3, 1902, 33 (California; common res.).—American Ornithologists' Union, Check-list, ed. 3, 1910, 165, part.—Swarth, Univ. California Publ. Zool., vii, 1911, 63 (Kuiu Island, Thomas Bay, Taku River, etc.; Alaska; crit.); xxiv, 1922, 214 (Stikine region, s. Alaska; crit.); Pacific Coast Avif., No. 10, 1914, 27 (Arizona; fairly common migr.).—Willett, Pacific Coast Avif., No. 7, 1912, 49 (Pacific slope of s. California).—Grinnell, Pacific Coast Avif., No. 8,

1912, 10 (California); No. 11, 1915, 68, part (common winter vis.; whole of California).—Tyler, Pacific Coast Avif., No. 9, 1913, 46 (Fresno County, Calif.; rare in winter).—Grave and Walker, Birds Wyoming, 1913, 43 (Wyoming; migr.; possibly breeds in alpine districts).—Brooks, Bull. Mus. Comp. Zool., lix, 1915, 399 (Demarcation Point, n. Alaska, May 31).—Brooks, Auk, xxxiv, 1917, 39 (Chilliwack, British Columbia, after August).—Howell, Pacific Coast Avif., No. 12. 1917, 57 (San Clemente Island; Calif.; Mar. 30—Apr. 11; San Cruz Island, Nov., Dec.).—Fleming, Ibis, 1920, 402, part (Saskatchewan; breeding).—Saunders, Pacific Coast Avif., No. 14, 1921, 66 (Montana; rare summer; migr.).—Gabrielson, Condor, xxiv, 1922, 34, in text (Harney Valley, Oreg.).—Dawson, Birds California (students' ed.), iii, 1923, 1630 (genl.; California).—Grinnell and Storer, Animal Life Yosemite, 1924, 295 (distr.; habits; Yosemite, Calif.).—Gabrielson, Auk, xli, 1924, 556 (near Enterprise, Oreg.).—Richards, Condor, xxvi, 1924, 100 (Grass Valley district, Calif.).—Wyman and Burnell, Field Book Birds Sothwestern United States, 1925, 106 (descr.).—Taverner, Birds Western Canada, 1926, 209, in text (breeding range; Canada).—Huey, Auk, xliii, 1926, 353 (Santo Domingo, nw. Lower California).—Kelso, Ibis, 1926, 703 (Arrow Lakes, Brit. Columbia; rare).—Huey, Condor, xxviii, 1926, 102, in text (San Diego, Calif.).—Bailey, Condor, xxviii, 1926, 124 (Demarcation Point and Unalaska; Alaska); Auk, xliv, 1927, 205 (mouth of Stikine River, Hoonish Sound, etc., se. Alaska).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 300 (Modoc County, Calif.).—Bailey, Birds New Mexico, 1928, 192 (genl.; New Mexico).—Jewett, Condor, xxx, 1928, 357, in text (near Arlington, Oreg.).—Burleigh, Auk, xlvi, 1929, 511 (Seattle, Wash.); Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 80, in text (Chitina River region, Alaska).—Kemsies, Wils. Bull., xlii, 1930, 204 (Yellowstone Park, Wyo.).—Gabrielson. Condor, xxxiii, 1931, 113 (Medford, Oreg.).—Swarth, Pacific Coast Avif., No. 22, 1934, 25 (Sitkalidak, Island, Alaska; spec., colors).—Laing Auk, lii, 1935, 305, in text (breeding at Chitina River, Alaska).

Tinnunculus columbarius columbarius Oberholser, Auk, xxxv, 1918, 207, part.

Falco columbarius subsp. ? Swarth, Condor, xxvi, 1924, 186 (autumn migr.; San Francisco Mountains, Ariz.).

Falco (*Aesalon*) *lithofalco* b. var. *columbarius* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 46, part (California; Wisconsin; part).

Falco lithofalco var. *columbarius* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 143, part.

Falco (*Aesalon*) *lithofalco* . . . var. *columbarius* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 144, part.

Falco columbarius bendirei Swann, Bull. Brit. Orn. Club, xlii, 1922, 66 (Walla Walla, Wash.; coll. Mus. Comp. Zool.); Synop. Accip., pt. 4, 1922, 195 (e. Brit. Columbia and Alberta to Lower California); Bull. Brit. Orn. Club, xliii, 1923, 148 (crit.).—Brooks, Auk, xl, 1923, 701, in text.—Peters, Bull. Essex County Orn. Club, 1926 (1927), 28 (crit.); Check List Birds of World, i, 1931, 296.—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 111 (distr. Lower California).—McLean, Condor, xxx, 1928, 352, in text (Yosemite region, Calif.); xxxviii, 1936, 16, in text (Gonzales, Calif.; specimen; intergrade between this form and *suckleyi*).—Palmer, Condor, xxx, 1928, 269, in text (patronymics).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 193 (type spec. Mus. Comp. Zool.).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 197 (distr., Lassen Peak region, n. California).—American Ornithologists' Union, Check-list, ed. 4, 1931, 76.—

Cumming, Murrelet, xiii, 1932, 7 (Vancouver, Brit. Columbia).—Howell, Florida Bird Life, 1932, 190 (genl.; winter vis., Florida).—Wetmore, Condor, xxxv, 1933, 163, in text (Turkey Tanks, Ariz.); Auk, l, 1933, 356 (Key West, Fla.; April 3, 1886, spec.).—Weydemeyer, Condor, xxxv, 1933, 122 (Lincoln, Mont., several records of this or *richardsoni*).—Willett, Pacific Coast Avif., No. 21, 1933, 47 (sw. California; crit.; syn.).—Long, Auk, li, 1934, 515, 516, in text (Yucatán, Cozumel Island; Kansas, Ellis County, 1875).—Swarth, Pacific Coast Avif., No. 22, 1934, 25, in text (crit.); Condor, xxxvii, 1935, 201, in text (taxonomic stat.).—Taverner, Birds Canada, 1934, 147, in text (Canada).—Linsdale, Pacific Coast Avif., No. 23, 1936, 23, 46 (Nevada; winter vis. and trans.; specimens).—Friedmann, Bull. Chicago Acad. Sci., v, No. 3, 1935, 30 (Kodiak Island; specs.; records).—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 57 (San Juan Islands, Wash.; migr.; 1 spec.).—Stone, Auk, lii, 1935, 481, in text.—Swarth, Wils. Bull., xlvii, 1935, 306, in text (tax., crit.); Condor, xxxvii, 1935, 201, in text (Fort Walla Walla, Wash.; type loc.).—Bond, Condor, xxxviii, 1936, 72, in text (food and feeding habits), 85, in text (habits).—Ford, Auk, liii, 1936, 210, in text (Chenier au Tigre, La., 2 specs.; Merritt Island, Fla., 1 spec.; Chicago, Ill., 1 spec.).—Van Tyne and Sutton, Misc. Publ. Mus. Zool. Univ. Michigan, No. 37, 1937, 25 (Brewster County, Tex.; sev. records; food).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 89 (life hist.).—Kitchin, Murrelet, xx, 1939, 29 (Mount Rainier National Park; rare; Sept.; specs.).—Martin, Condor, xli, 1939, 125, in text (Santa Clara County, Calif.; spec.).—Niedrach and Rockwell, Birds Denver and Mountain Park, 1939, 59 (migr.; occas. winter res.; 3 specs.).—Gabrielson and Jewett, Birds Oregon, 1940, 205 (Oregon; very rare breeder, uncommon migr. and winter res. in east, very rare straggler w. of Cascades; descr.; distr.; habits; food).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; accidental; single spec. from Ellis County).—Rivers, Condor, xliii, 1941, 66, in text (Nevada; feeding habits).—Laing, Condor, xliv, 1942, 176 (coastal Brit. Columbia).—Behle, Bull. Univ. Utah, xxxiv, No. 2, 1943, 24 (sw. Utah, Washington County); Condor, xlvi, 1944, 71 (Utah).—Dixon, Condor, xlv, 1943, 54 (Arctic Alaska; Demarcation Point).—Cahalane, Auk, lxi, 1944, 363 (Alaska, Ukak River, Windy Creek above Three Forks, Katmai Bay, Cape Cubugaklion, Kashvik Bay).—Gabrielson, Auk, lxi, 1944, 121 (Alaska, commonest hawk in interior, and Mount McKinley Park and Steese Highway, also between Park and Fairbanks and also down Richardson Highway).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 110 (California; winter vis.).—Hill, Auk, lxi, 1944, 230 (meas.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 182 (Kansas; 1 record, many years ago).—Haecker, Moser and Swenk, Nebraska Bird Rev., xiii, 1945, 10 (Nebraska; rare migr.; 1 record).—McAllister and Marshall, Auk, lxii, 1945, 183 (Oregon, Fremont Nat. Forest).—Munro, Can. Journ. Res., 1945, 57 (Cariboo Parklands, Brit. Columbia; 1 spec.).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 64 (Sonora; winter vis.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Arvey, Univ. Kansas Publ. Mus. Nat. Hist., i, No. 10, 1947, 199 (Idaho).

Tinnunculus columbarius bendirei Oberholser, Auk, xl, 1923, 680; Bird Life Louisiana, 1938, 186 (Louisiana; rare winter resident; no record n. of New Orleans; distr.).

Falco richardsoni Brewster, Bull. Nuttall Orn. Club, vi, 1882, 230, part (Walla Walla, e. Washington; Oct. 13 and 21).

Falco richardsonii (not of Ridgway, 1870) RHOADS, Proc. Acad. Nat. Sci. Philadelphia, 1893, 40 (Okanagan, Brit. Columbia).—LANTZ, Trans. Kansas Acad. Sci. for 1896–1897 (1899), 219 (Lower California).—WOODCOCK, Oregon Agr. Exp. Stat. Bull. 68, 1902, 35 (Oregon range).—KERMODE, Bull. Provincial Mus., 1909, 45 (near Victoria, Vancouver Island; Chilliwak, and Okanagan, Brit. Columbia).

Falco columbarius richardsoni HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 262 (Walker Basin, Calif.).—BENDIRE, Proc. Boston Soc. Nat. Hist., 1877, 134 (Camp Harney, Oreg.; nesting).—BISHOP, North Amer. Fauna, No. 19, 1900, 75 (Circle, Alaska, Aug. 18, crit.).—PHILLIPS, Auk, xxxviii, 1911, 73 (Matamoros, Tamaulipas, Mexico; Jan.).—WILLETT, Pacific Coast Avif., No. 7, 1912, 49 (San Fernando Valley, Calif; Oct. 31, 1903; Witch Creek, San Diego County, Calif., Feb. 9, 1904).—GRINNELL, Pacific Coast Avif., No. 11, 1915, 68 (rare winter vis. in California; Walker Basin, San Fernando Valley, and Witch Creek).—BROOKS, Auk, xxxiv, 1917, 39 (Chilliwak, Brit. Columbia).—DAWSON, Birds California (stud. ed.), iii, 1923, 1634 (genl.; California).

Falco columbarius richardsonii BREWSTER, Bull. Mus. Comp. Zool., xli, 1902, 90 (San José del Cabo, Lower California, Oct. 31; crit.).—WAYNE, Auk, xx, 1903, 67 (Mount Pleasant, S. C., Oct. 15, 1895); Birds South Carolina, 1910, 78 (Mt. Pleasant).

Hypotriorchis columbarius GRAY, Gen. Birds, i, 1844, 20, part; Hand-list, i, 1869, 21, No. 193, part.—BONAPARTE, Consp. Gen. Av., i, 1850, 26, part.—CASSIN, Illustr. Birds California, Texas, etc., 1854, 90; *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 9.—HEERMANN, Pacific R. R. Rep., ii, 1855, 31.—BREWER, North Amer. Ool., i, 1857, 12, part (Pacific coast).—NEWBURY, Pacific R. R. Rep., vi. 1857, 74.—WOODHOUSE, *in* Sitgreaves Exp., 1858, 60.—BAIRD, Cat. North Amer. Birds, 1859, No. 7, part.—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 270 (Nulato, Alaska; whole year; Kodiak Island).—RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 146, part (diagn.).—STEVENSON, U. S. Geol. Surv. Terr., 1871, 462, part (Colorado; Wyoming).—MERRIAM, *in* Hayden, U. S. Geol. Surv. Montana, Idaho, Wyoming, Utah, 1873, 714 (Utah).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 121, part.—HENSHAW, Ann. Lyc. Nat. Hist. New York, xi, 1874, 9 (Utah).

Aesalon columbarius HENSHAW, Rep. Expl. W. 100th Meridian, 1874, 48 (Utah; resident).—RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, 1879, 434 (Stockton, Calif.; Oct., Nov.).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 192; Nom. North Amer. Birds, 1881, No. 417, part.—GURNEY, List Diurn. Birds Prey, 1884, 104, part; Cat. Birds Prey, 1894, 29, part.—MCLENEGAN, Cruise *Corwin*, 1884, 118 (Kowak River, nw. Alaska).

Aesalon lithofalco columbarius GOODE, U. S. Nat. Mus. Bull. 20, 1883, 305, part.

Falco sparverius BRETHERTON, *in* Friedmann, Bull. Chicago Acad. Sci., v, No. 3, 1935, 31, in text (Kodiak Island, "tolerably common").

FALCO COLUMBARIUS RICHARDSONII Ridgway

RICHARDSON'S PIGEON HAWK

Adult male.—Similar to that of *Falco columbarius columbarius*, but very much paler above and below; top of head dark gull gray to neutral gray, occasionally washed with a little pale tawny, the scapulars, interscapulars, upper wing coverts, secondaries, upper and lower back, rump, and upper tail coverts paler, light neutral gray to pale neutral gray, the feathers with conspicuous, narrow black shaft

stripes; the nuchal collar with practically no buffy or ochraceous tinge; the white bars on the inner webs of the remiges broader, wider than the dark interspaces, usually reaching entirely across the webs, and the outer webs with pale spots in corresponding positions; rectrices paler than their upper coverts, light gull gray becoming whitish on the inner webs of all but the median pair; the subterminal broad black band is narrower (15–25 mm.) and anterior to this are five narrower (5–10 mm.) bands of the same; frontal line and superciliaries whiter, less washed with pinkish buff; cheeks and auriculars whiter, the dark shaft stripes very much finer; chin and upper throat immaculate or almost immaculate; the streaks on the breast, abdomen, sides, and flanks drab to hair brown with narrow fine blackish shaft lines; thighs not washed with ochraceous buff; entire underparts only slightly tinged with pale buff.

Adult female.—Similar to the adult male, but with a fulvous or sandy wash on the upperparts; rectrices hair brown where there is black in the male; pale spots on remiges slightly suffused with pale tawny buff; chin, upper throat, thighs, lower abdomen, and under tail coverts practically immaculate, at most only a few fine, faint shaft lines on the thighs and under tail coverts.

Juvenal male.—Generally similar to the adult female, but with none of the grayish tone above, top of head Saccardo's umber with black shaft stripes; upper surface of wings and body hair brown, the feathers narrowly edged with pale ochraceous or rusty hair brown; the tail as in adult female, but the dark bars darker, fuscous to chaetura drab.

Juvenal female.—Like the juvenal male, but the dark bars of the tail paler, hair brown, darkening to fuscous only in the broad subterminal band; crown and occiput slightly paler, buckthorn brown.

Natal down.—As in nominate form.

Adult male.—Wing 195–203 (197.7); tail 117–132 (124); culmen from cere 12–13.5 (12.5); tarsus 35.5–40 (37.4); middle toe without claw 29–34 (30.9 mm.).[63]

Adult female.—Wing 210–228 (220.2); tail 126–149 (137.4); culmen from cere 13.5–15 (14.1); tarsus 38–42 (41.1); middle toe without claw 33–37 (35.4 mm.).[64]

Range.—Breeds in the Great Plains region of northern Alberta (Calgary, Lac la Nonne, Red Deer River, Castor, Edmonton, Sullivan Lake); central Saskatchewan (Cypress Hill, Grand Rapids, Fort Pelley, Carleton House); southern Manitoba (Oak Lake); Montana

[63] 12 specimens from Alberta, Saskatchewan, Wyoming, North Dakota, Colorado, and Oklahoma.

[64] 10 specimens from Alberta, Saskatchewan, Montana, Colorado, and Sonora, Mexico.

(Madison River, Zortman, Fort Keogh); and northern North Dakota (Vermillion River, Qu'Appelle Valley, Fort Rice, Long Coteau River).

Winters from Wyoming (Green River, La Bonte Creek, Bridger Mountains); Colorado (Wet Mountains, Loveland, Walkers Basin, El Paso County, Berthouds Pass, Colorado Springs, Boulder County, Lorimer County); to California (rare—Riverdale, Riverside, San Diego, Ventura County, Lassen Peak region); Arizona (Fort Mojave); New Mexico (Fort Wingate, Perico, near Silver City); Texas (El Paso, Brownsville, Refugio County); and to northwestern Mexico (Sonora—Santa Cruz River and Hermosilla).

Migrates through South Dakota; Wisconsin (Stevens Point, Galesville, Lake Koshkonong); Minnesota (Jackson County); Nebraska (Omaha, West Point, Black Hills); and Kansas (scarce) and Oklahoma (very scarce—camp Supply, Red River Canyon, White Fish Creek).

Casual in southern Ontario (Sault St. Marie); Missouri (Stone County); Illinois (Warsaw); and Iowa (Stone Lake, Buena Vista County; Blackhawk County; La Parte City.) [65]

Type locality.—"Interior of North America"; 3 cotypes listed from mouth of Vermillion River near the Missouri, and Fort Rice, N. Dak.; and Berthouds Pass, Colo., the first of which may be taken as the restricted type locality.

Falco aesalon (not of Gmelin) Swainson and Richardson, Fauna Bor.-Amer., ii, 1831, 37, pl. 25 (Carleton House, Saskatchewan River).—Nuttall, Man. Orn. United States and Canada, Land Birds, 1834, 558 (Carleton House; Sault St. Marie; "occasionally—seen in vicinity of Boston"); ed. 2, 1840, 61 ("Bear River, Rocky Mts.;" etc.).—(?) Townsend, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151 (nw. United States).—(?) Hoy, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 305 (Wisconsin).—(?) Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 43, in text (Fort Mojave; Ariz.).

Falco (*Hypotriorchis*) *columbarius* Coues, Proc. Acad. Nat. Sci. Philadelphia, 1866, 42, part (Arizona).

Hypotriorchis richardsonii Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 140, footnote (nomen nudum).—Snow, Birds Kansas, 1873, 1.

Falco (*Hypotriorchis*) *richardsonii* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, xxii, Dec. 1870, 145 (Berthouds Pass, Colo.; coll. U. S. Nat. Mus.).

Falco richardsonii Coues, Key North Amer. Birds, 1872, 214.—Ridgway, Bull. Essex Inst., v, 1873, 186 (Colorado); Man. North Amer. Birds, 1887, 251.—Coues, Check List North Amer. Birds, 1873, No. 345.—Sharpe, Cat Birds Brit. Mus., i, 1874, 408, footnote; Hand-list, i, 1899, 275.—American Ornithologists' Union, Check-list, 1886, and 2d ed., 1895, No. 358.—Cooke, Bird Migr. Mississippi Valley, 1888, 119 (Nebraska, breeding, se. South Dakota; migr.; w. Kansas; La Porte City, Iowa); Birds Colorado, 1897, 76 (summer res. up to 11,000 feet).—Thompson, Proc. U. S. Nat. Mus., xiii, 1890, 537 (Mouse River, N. Dak.; Fort Pelly, Manitoba, Sept.).—Goss, Hist.

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[65] It is possible that some of these casuals are really to be referred to the subspecies *bendirei*, but in the absence of the actual specimens no reallocation is possible.

Birds, Kansas, 1891, 286 (Kansas, rare).—Hatch, Notes Birds of Minnesota, 1892, 201, 456 (2 specs.; descr.).—Fisher, Hawks and Owls United States, 1893, 114.—Nutting, Bull. New Hampshire State Unit. Iowa, ii, 1893, 269 (Grand Rapids, lower Saskatchewan).—Lowe, Auk, xi, 1894, 267 (Wet Mountains, Colo., 8,000 feet, 2 specs.).—Richmond and Knowlton, Auk, xi, 1894, 303 (Madison River, Mont., Sept. 23).—Thorne, Auk, xii, 1895, 214 (Fort Keogh, Mont., autumn).—Lantz, Trans. Kansas Acad. Sci., 1896–97, 1899, 256 (Kansas; migr.; rare in eastern part; not uncommon in western part).—Bailey, Handbook Birds Western United States, 1902, 169 (descr.; distr.).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 67 (Wisconsin).—Widmann, Birds Missouri, 1907, 103 (Stone County, 1 spec.).

Falco richardsoni Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, special ed., iii, 1875, pl. facing p. 148; Field and Forest, ii, 1877, 210 (Colorado).—McChesney and Coues, U. S. Geol. and Geogr. Surv. Terr., Bull. 3, 1877, 683 (canyon region of Red River, Indian Terr.; White Fish Creek, breeding; descr. nest and eggs).—Coues, U. S. Geol. and Geogr. Surv. Terr., Bull. 4, 1878, 623 (headwaters Mouse River, N. Dak., Sept. 8).—Brewster, Bull. Nuttall Orn. Club, vii, 1882, 230, part (descr. adult male from Colorado Springs, Colo.).—Allen and Brewster, Bull. Nuttall Orn. Club, viii, 1883, 197 (Colorado Springs, Colo.).—Sclater, Ibis, 1895, 487 (Lorimer County, Colo.).—Brooks, Ibis, 1896, 226, pl. 5 (crit.).—Carroll, Auk, xvii, 1900, 343 (Refugio County, Tex., rare).—Salvin and Godman, Biol. Centr.-Amer., Aves, iii, 1901, 120 (Hermosilla, Sonora).—Grinnell, Pacific Coast Avif., No. 3, 1902, 33 (California; 1 record from Walker Basin, August 28, 1875).—Preble, North Amer. Fauna, No. 22, 1902, 108 (Grand Rapids, Saskatchewan).—Daggett, Condor, vii, 1905, 82 (San Fernando Valley, Los Angeles County, Calif., Oct. 31, 1903).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 257 (Iowa; 3 records).

Falco lithofalco var. (?) *richardsoni* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 143.

Falco (*Æsalon*) *lithofalco* var. *richardsoni* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 148.

Falco lithofalco richardsoni Goode, U. S. Nat. Mus. Bull. 20, 1883, 320.

Falco columbarius (?) *richardsoni* Grinnell, *in* Ludlow's Rep. Recon., 1876, 82 (Bridger Mountains, Wyo.).

Falco columbarius richardsoni Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 134 (Camp Harney, Oreg.).—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 507; Key North Amer. Birds, ed. 2, 1884, 537.—American Ornithologists' Union, Check-list, ed. 3, 1910, 165; ed. 4, 1931, 76.—Saunders, Auk, xxviii, 1911, 36 (near Bozeman, Mont., summer); Pacific Coast Avif., No. 14, 1921, 66 (Montana; rare summer res.).—Grinnell, Pacific Coast Avif., No. 7, 1912, 10 (California).—Sclater, Hist. Birds Colorado, 1912, 189 (res. in Colorado).—Willett, Pacific Coast Avif., No. 7, 1912, 49 (s. California).—Bunker, Kansas Univ. Sci. Bull., vii, 1913, 147 (rare in e., common in w. Kansas, in migr.).—Grave and Walker, Birds Wyoming, 1913, 43 (Wyoming; res. chiefly in s. part).—Betts, Univ. Colorado Stud. Zool., x, 1913, 194 (Boulder County, Colo., up to 10,000 feet; migr., winter res., or vis., on plains).—Swarth, Pacific Coast Avif., No. 10, 1914, 28 (Fort Mohave and Fort Verde, Ariz.).—Grinnell, Pacific Coast Avif., No. 11, 1915, 68 (California; distr.).—Bailey, Iowa Geol. Surv. Bull. 6, 1918, 167 (Iowa; monogr.).—Swann, Synopt. List Accip., pt. 4, 1920, 142; Synop.

Accip., pt. 4, 1922, 194.—Over and Thoms, Birds South Dakota, 1921, 88 (South Dakota; not common).—Wood, Univ. Michigan Mus. Zool. Misc. Publ. No. 10, 1923, 42 (Fort Rice, N. Dak.); headwaters Mouse River, Sept. 8, 1873).—Mitchell, Can. Field Nat., xxxviii, 1924, 109 (Saskatchewan; not common).—Griscom and Crosby, Auk, xlii, 1925, 536 (stat. Brownsville, Tex.).—Taverner, Birds Western Canada, 1926, 209, in text (descr.; range; Canada); Auk, xliv, 1927, 222 (near Oak Lake, Manitoba); Nat. Mus. Canada Bull. 50, 1928, 93 (near Belvedere, Alberta); Birds Canada, 1934, 147, in text (Canada).—Bailey, Birds New Mexico, 1928, 193 (genl.; New Mexico).—Larson, Wils. Bull., xl, 1928, 47 (e. McKenzie County, N. Dak.).—Palmer, Condor, xxx, 1928, 292, in text (patronymics).—Nice, Birds Oklahoma, rev. ed., 1931, 77 (genl.; Oklahoma).—Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 25 (Missouri; casual).—Roberts, Birds Minnesota, i, 1932, 359, in text (rare in Minnesota).—Wetmore, Auk, l, 1933, 356, in text.—Weydemeyer, Condor, xxxv, 1933, 122, in text (Lincoln County, Mont.; sev. uncertain records).—Willett, Pacific Coast Avif., No. 21, 1933, 47.—McCreary, Wils. Bull., xlvi, 1934, 123, in text (Wheatland, Wyo.; winter record).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 136, in text (se. Wyoming; trans.; dates).—Swarth, Condor, xxxvii, 1935, 201, in text (tax. status).—Alexander, Univ. Colorado Stud., No. 24, 1937, 91 (Boulder County, Colo.; infrequent to common trans., may occur in winter and summer; spec. Univ. Colorado Mus.).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 86 (life hist.).—Niedrach and Rockwell, Birds Denver and Mountain Parks, 1939, 57 (not common, migr. and winter vis.; habits).—Gabrielson and Jewett, Birds Oregon, 1940, 205, in text.—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; common migr. in w.; now rare; specs. from Ellis County).—Twomey, Ann. Carnegie Mus., xxviii, 1942, 383 (Uinta Basin, Utah).—Hill, Auk, lxi, 1944, 230 (meas.).—Goodrich, Rep. Kansas State Board Agr., lxiv, No. 267, 1945, 182 (Kansas; migr. or winter in w. Kansas).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 10 (Nebraska; uncommon migr.).—Packard, Auk, lxii, 1945, 375 (Colorado, Rocky Mountain National Park).

Falco columbarius richardsonii American Ornithologists' Union Committee, Auk, xxv, 1908, 370.—Cory, Publ. Field Mus. Nat. Hist., No. 131, 1909, 481 (Warsaw, Ill., no date; Stevens Point, Lake Koshkonong, and near Janesville, Wis., several records).—Dawson and Bowles, Birds Washington, ii, 1909, 538 (Washington; habits; distr.; descr.).—Wood, Auk, xliii, 1925, 145 (edge of Turtle Mountain, N. Dak.).—Huey, Condor, xxviii, 1926, 102, in text (Riverside and San Diego, Calif.).—Peters, Bull. Essex County Orn. Club for 1926 (1927), 21 (range; crit.; plum.); Check-list Birds of World, i, 1931, 296.—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 196 (Lassen Peak, region, n. California, 1 spec.).—Willett, Pacific Coast Avif., No. 21, 1933, 47 (sw. California; occas. winter vis.; syn.; crit.).—Vorhies, Jenks, and Phillips, Condor, xxxvii, 1935, 245, in text (Tucson, Ariz.; spec.).—Bond, Condor, xxxviii, 1936, 178, in text (live weight of bird).—McLean, Condor, xxxviii, 1936, 16, in text (Lassen County, Calif.; spec.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 110 (California; winter vis.).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 64 (Sonora; winter vis.).

Aesalon columbarius Subspecies *α richardsoni* Gurney, List Diurn. Birds Prey, 1884, 104.

Tinnunculus columbarius richardsonii Oberholser, Auk, xxxv, 1918, 207.

Hypotriorchis columbarius (not *Falco columbarius* Linnæus) Stevenson, Prelim. Rep. U. S. Geol. Surv. Terr., 1871, 462 (La Bonte Creek and Green River, Wyo.).

Aesalon richardsonii Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 192.

Aesalon richardsoni Ridgway, Nom. North Amer. Birds, 1881, No. 418.—Agersborg, Auk, ii, 1885, 285 (se. South Dakota, migr.).—Gurney, Cat. Birds Prey, 1894, 29.

Aesalon lithofalco richardsoni Goode, U. S. Nat. Mus. Bull. 20, 1883, 305.

FALCO COLUMBARIUS SUCKLEYI Ridgway

Black Pigeon Hawk

Adult male.—Similar to that of *Falco columbarius columbarius*, but very much darker above, dark slate-black to black on the top of head, scapulars, interscapulars, upper wing coverts, and upper back; the lower back, rump, and upper tail coverts lighter, dark slate; the nuchal collar less prominent (the pale areas of the feathers more reduced, more restricted to the hidden basal parts); remiges, including the inner secondaries black tipped narrowly with very pale drab gray to whitish, the pale bands or transverse spots on the inner webs smaller, pale ochraceous-buff, and not reaching the edge of the web; rectrices black tipped with white, the three light bands much narrower and reduced to grayish white spots on both webs of the median pair and on the outer webs of all the others, where the longer marks on the inner webs are suffused with pale pinkish buff (in the type specimen these spots entirely wanting); the streakings on the underparts averaging somewhat heavier and darker, fuscous-black to fuscous; entire underparts tinged with pale ochraceous-buff; colors of soft parts as in the nominate race.

Adult female.—Similar to the male, but the upperparts fuscous-black with only a slight slaty tinge on the rump and upper tail coverts, the pale markings on the inner webs of the remiges slightly deeper ochraceous-buff, and similarly reduced in size.

Juvenal female (no young males seen; sexes probably alike).—Like the adult female but with the crown and occiput dark sepia with black shaft stripes; the feathers of the upper back, upper wing coverts, scapulars and interscapulars narrowly edged with sepia; underparts slightly paler in ground color than adults, pale light ochraceous-buff to light buff.

Natal down.—Unrecorded.

Adult male.—Wing 186–197 (188.7); tail 115–122 (119.2); culmen from cere 11.5–12.5 (12.1); tarsus 35.5–40.5 (38.1); middle toe without claw 30–35.5 (36.6 mm.).[66]

[66] Seven specimens from British Columbia, Washington, and New Mexico.

Adult female.—Wing 207–215 (211.6); tail 127–140 (131.1); culmen from cere 13–15 (14.2); tarsus 38–42 (39.9); middle toe without claw 32–38.5 (34.4 mm.).[67]

Range.—Breeds in western British Columbia (Okanagan Valley; Chilliwack; Comox, Clayoquot; Yellowhead Lake, between Alta and Nita Lakes, the Queen Charlotte Islands—Cumshewa Inlet; Massett; Vancouver Inland; Victoria; Cameron and Central Lakes).[68]

Winters southward through Washington (Shoalwater Bay; Fort Steilacoom; Walla Walla, Cape Disappointment; Seattle; Tacoma); and Oregon (Fort Klamath; Netarts Bay, Scio, Seaside); to California (Yeeka, Siskiayou County; Mount Shasta; Claremont, Los Angeles County; San Francisco Bay) and to New Mexico (La Jara Lake) and Colorado (Weldona). Occasionally to Wisconsin (Moon Lake and Cedar Grove).

Erroneously said to winter south to Venezuela.

Type locality.—Shoalwater Bay and Fort Steilacoom, Wash.

Falco columbarius (not of Linnaeus) Cooper and Suckley, Rep. Pacific R. R. Surv., xii, book 2, chapt. 3, 1860, 142, part (Straits of Fuca and Fort Steilacoom, Wash.).—(?) Brown, Ibis, 1868, 418 (Vancouver Island).—(?) Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 99 (Rancho La Brea; bones).—Cushing, Condor, xliii, 1941, 70, in text (Quesnel Lake, British Columbia; feeding habits).—Burdick, Condor, xlvi, 1944, 239 (n. Cascade Mountains, Wash.).—Munro, Condor, xlviii, 1946, 182, in text (Redstone, w. of Williams Lake, Brit. Columbia; nesting).

Falco columbarius suckleyi Ridgway, Bull. Essex Inst., v, 1873, 201 (Shoalwater Bay, Wash.; coll. U. S. Nat. Mus.).—Coues, Check List North Amer. Birds, 1873, Append., 133 (No. 344a); ed. 2, 1882, No. 506.—Brewster, Auk, vii, 1882, 230 (Walla Walla, Wash.; crit.; descr. adult male).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 357a; ed. 3, 1910, 165; ed. 4, 1931, 76.—Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 1893, 40 (Victoria, Brit. Columbia).—Brooks, Auk, xvii, 1900, 105 (Brit. Columbia, both sides of Cascade Mountains); xxxiv, 1917, 39 (Chilliwack, Brit. Columbia; not breeding); Auk, xl, 1923, 701 (15 miles n. of Osoyoos Lake, Brit. Columbia).—Kobbé, Auk, xvii, 1900, 352 (Cape Disappointment, Wash., Apr. 23).—Osgood, North Amer. Fauna, No. 21, 1901, 43 (Cumshewa Inlet, Queen Charlotte Islands, June 14; Massett, Queen Charlotte Islands).—Eckstrom, Auk, xix, 1902, 383 [—385] (descr. adult male from near Fort Klamath, Oreg., May 9, 1883).—Grinnell, Pacific Coast Avif., No. 3, 1902, 33 (California; rare winter vis. in n. part); No. 8, 1912, 10 (California); No. 11, 1915, 68 (Yreka, Siskiyou County, Calif., Oct.; Mount Shasta, Aug. 8; Claremont, Los Angeles County, Dec. 6, 1895).—Rathbun, Auk, xix, 1902, 1902, 134 (Seattle, Wash.).—Woodcock, Oregon Agr. Exp. Stat. Bull. 68, 1902, 35 (Oregon range).—Bowles, Auk, xxiii, 1906, 143 (Tacoma, Wash., res.); Condor, xxi, 1919, 239 (Tacoma, Wash., Sept. 8).—Dawson and Bowles, Birds Washington, ii, 1909, 536 (Washington; distr.; habits).—Kermode, Prov. Mus. Victoria, 1909, 45 (Vancouver Island and portions of

[67] Fourteen specimens from Alaska, British Columbia, and Wisconsin.

[68] Two specimens seen from Alaska (Twin Points; Toklat River), not breeding.

mainland, Brit, Columbia; Chilliwack).—Swarth, Rep. Birds and Mamm. Vancouver Island, 1912, 29 (Central and Cameron Lakes, Aug.; crit.); Univ. California Publ. Zool., xxiv, 1924, 337 (Skeena River, Brit. Columbia); xxx, 1926, 116 (Atlin, Brit. Columbia; breeding range); Condor, xxxvii, 1935, 201, in text (Fort Steilacoom, Wash.; type loc.), 202, in text (distr.; tax. stat.).—Willett, Pacific Coast Avif., No. 7, 1912, 49 (Claremont, Los Angeles County, Calif., Dec. 6, 1895); No. 21, 1933, 47 (sw. California; 1 record; syn.).—Brooks, Auk, xxxiv, 1917, 39 (Chilliwack, Brit. Columbia; not breeding); Auk, xl, 1923, 701 (15 miles n. of Osoyoos Lake, Brit. Columbia).—Swann, Synopt. List Accip., pt. 4, 1920, 141; Synop. Accip., pt. 4, 1922, 194 (Sitka to British Columbia, s. in winter casually to Venezuela).—Dawson, Birds California (stud. ed.), iii, 1923, 1633 (genl.; Californa).—Walker, Condor, xxvi, 1924, 181 (Netarts Bay, Oreg.).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington, Publ. 349, 1925, 99, in text; Condor, xliii, 1941, 199, in text (s. California).—Racey, Auk, xliii, 1926, 322 (between Alta and Nita Lakes, Brit. Columbia).—Taverner, Birds Western Canada, 1926, 209, in text (range; characters); Birds Canada, 1934, 147, in text (Canada), 148, in text (crit.).—Peters, Bull. Essex County Orn. Club, 1926 (1927), 2 (crit.; plum.; distr.); Check-list Birds of World, i, 1931, 296.—Jewet, Condor, xxx, 1928, 357, in text (near Seaside, Oreg.); xli, 1939, 84, in text (Deschutes County, Oreg.; nest.; 2 specs. food habits), 85, in text (Oregon; stat.); Murrelet, xxiii, 1942, 69 (Chilkat River, s. e. Alaska); Condor, xlvi, 1944, 206, in text (Rio Arriba County, N. Mex.).—Palmer, Condor, xxx, 1928, 297, in text (patronymics).—Prill, Wils. Bull., xl, 1928, 112 (Scio, Oreg.; spec.).—Munro, Condor, xxxi, 1929, 114 (food habits).—Kitchin, Murrelet, xl, 1930, 72, in text (Westport, Wash.; spec.); xx, 1939, 29 (Mount Rainier National Park) (1 spec.).—Cumming, Murrelet, xiii, 1932, 7 (Vancouver, Brit. Columbia; scarce migr.).—Unglish, Condor, xxxvi, 1934, 166, in text (Gilroy, Calif.; spec.).—Friedmann, Bull. Chicago Acad. Sci., v, No. 3, 1935, 31 (Kodiak Island; erroneous).—Gabrielson, Murrelet, xvi, 1935, 39 (Klamath County; spec.).—Laing, Auk, lii, 1935, 305–307, in text (Brit. Columbia; crit.); lv, 1938, 525, in text (Brit. Columbia; breeding; spec.).—Miller, Lumley, and Hall, Murrelet, xvi, 1935, 63 (San Juan Islands, Wash.; hypoth. list).—Sutton, Auk, lii, 1935, 79, in text (breeding range).—McLean, Condor, xxxviii, 1936, 16, in text (Santa Clara County, Calif.; 2 specimens).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 83 (life hist.).—Lowe, Ibis, iii, 1939, 71 (Cadboro Bay, Victoria, Brit. Columbia; 1 spec.; meas.).—Davis, Condor, xlii, 1940, 222, in text (Eureka, Calif.; 3 spec.).—Gabrielson and Jewett, Birds Oregon, 1940, 204 (Oregon; rare winter res. on coast, casual inland; descr.; distr.; habits).—Miller and Curtis, Murrelet, xxi, 1940, 42 (University of Washington campus; 2 records).—Rett, Condor, xlii, 1940, 266, in text (Santa Barbara, Calif.; 2 specs.).—Cushing, Condor, xliii, 1941, 70, in text (Quesnel Lake, Brit. Columbia; possibly this race).—Bailey, Condor, xliv, 1942, 37, in text (Weldona, Colo.; spec.; Dec.).—Slipp, Condor, xliv, 1942, 128, in text (Kennewick, e. Washington).—Alcorn, Condor, xlv, 1943, 40, in text (near Fallon, Nev.).—Grinnell and Miller, Pacific Coast Avif., No. 27, 1944, 111 (California; vagrant or winter vis.).—Hill, Auk, lxi, 1944, 230 (meas.).

Falco columbarius suckleyi? Coues, Key North Amer. Birds, ed. 2, 1884, 537.—Bailey, Handbook Birds Western United States, 1902, 169 (descr.; distr.).—Laing and Taverner, Ann. Rep. Nat. Mus. Canada for 1927 (1929), 80, in text (Atlin, Brit. Columbia; spec.).—Willett, Pacific Coast Avif., No. 21, 1933, 47, in text (crit.).—[Stone], Auk, lii, 1935, 481, in text

(crit.).—Alcorn, Condor, xlviii, 1946, 132 (Lahontan Valley, Nev.).—Munro, Condor, xlviii, 1946, 182, in text (Redstone, w. of Williams Lake, Brit. Columbia).

Falco suckleyi Sharpe, Hand-list, i, 1899, 275.

Falco lithofalco suckleyi Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 143.—Goode, U. S. Nat. Mus. Bull. 20, 1883, 320.

Aesalon lithofalco suckleyi Goode, U. S. Nat. Mus. Bull. 20, 1883, 305.

Aesalon columbarius suckleyi Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 192; Nom. North Amer. Birds, 1881, No. 417a).

Aesalon columbarius subspecies b. *suckleyi* Gurney, List Diurn. Birds Prey, 1884, 104 (crit.).

Aesalon suckleyi Gurney, Cat. Birds Prey, 1894, 29.

Tinnunculus columbarius suckleyi Oberholser, Auk, xxxv, 1918, 207.—Willett, Pacific Coast Avif., No. 21, 1933, 47 (syn.).

Falco aesalon Hall, Murrelet, xix, 1938, 7, footnote (Columbia River, Wash.; spec.).

Subgenus Tinnunculus Vieillot

Small, rather slender falcons (wing about 166–279 mm.) with inner toe, without claw, extending beyond penultimate articulation of middle toe; middle toe, with claw, decidedly shorter than tarsus; hallux, without claw, less than one-third as long as tarsus; tail two-thirds as long as wing, rounded, two outer primaries with inner webs emarginated, sexes conspicuously unlike in color (in all stages) and young similar to adults in coloration.

Bill relatively rather small, but strong, its depth at base of rhamphotheca decidedly exceeding its width at same point and very nearly equal to distance from anterior margin of cere (in front of nostril) to tip of maxilla; culmen regularly decurved from base, more or less distinctly ridged; gonys moderately convex, ascending terminally, rather prominent basally, not distinctly if at all ridged; maxillary tomium strongly incised immediately posterior to the subterminal "tooth." Nostril moderate in size to rather small, nearly circular. Wing long and pointed, the longest primary exceeding distal secondary by half the length of wing; second or second and third primary (from outside) longest, the first (outermost) much shorter than third; inner webs of first and second primaries emarginated, the emargination on first opposite interval between tips of fifth and sixth, that on second between tips of fourth and fifth; second and third primaries with outer webs sinuated. Tail about two-thirds as long as wing, distinctly rounded, the graduation sometimes (in *F. tinnunculus*) equal to or exceeding length of middle toe with claw but usually decidedly less, the retrices (12) relatively rather narrow, with rounded tips. Tarsus much longer than middle toe with claw, one-fifth to a little more than one-sixth (in *F. tinnunculus*) as long as wing, its upper portion feathered in front from about one-fourth (*F. tinnunculus*) to about one-third (*F. sparverius*) its length; acrotarsium covered (in

American species) by two longitudinal series of large, alternating transverse scutella except on lower portion where there is a single frontal series, the planta tarsi covered with small hexagonal scales, or (in *F. tinnunculus* and *F. rupicolus*) the acrotarsium with a single series of large scutella on inner side only, the outer side covered with small hexagonal scales similar to those on planta tarsi, but somewhat larger; outer toe, without claw, extending to considerably beyond penultimate articulation of middle toe, the shorter inner toe extending slightly beyond (in *F. tinnunculus*), the lateral toes relatively much longer in *F. rupicolus*, and slightly shorter in *F. sparverius*, in which the outer toe extends but little beyond the articulation mentioned, the inner toe still less beyond it; hallux, without claw, less than one-third as long as tarsus, its claw shorter than the digit.

Plumage and coloration.—Plumage compact but very soft, the primaries and rectrices not rigid, the former with obtuse tips; orbital region bare. Coloration of sexes conspicuously different, but young not distinctly different from adults.

Range.—Nearly cosmopolitan, but absent from Polynesia, New Zealand, and Galápagos Archipelago. (Eleven or 12 species, with many subspecies.)

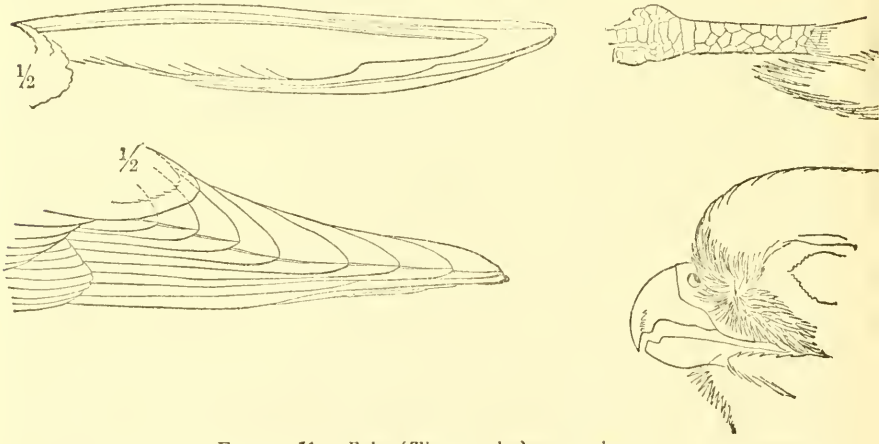

FIGURE 51.—*Falco* (*Tinnunculus*) *sparverius*.

FALCO TINNUNCULUS TINNUNCULUS Linnaeus

EUROPEAN KESTREL

Adult male.—Forehead cartridge buff to pale ivory yellow; crown, occiput, nape, and back of neck neutral gray to deep neutral gray, sometimes washed with rufescent or buffy, each feather with a narrow black shaft streak; scapulars, interscapulars, upper back, lesser and median upper wing coverts and greater upper secondary coverts

pinkish fawn color with a mauve-avellaneous cast, the feathers with medio-subterminal wedge-shaped black marks of variable size and number, fewest and smallest on the upper back and the more distal upper wing coverts; upper greater primary coverts fuscous to chaetura black with some grayish cinnamomeous marks; primaries and outer secondaries fuscous to chaetura black very narrowly tipped and margined with grayish white, the inner webs incompletely barred with whitish, the pale bars not reaching the shaft but confluent at the inner edge of the web, the whitish sometimes washed with pinkish cinnamon; the other secondaries with an increasing (from outer to inner) amount of pinkish fawn or grayish pinkish cinnamon on both webs, the innermost secondaries being almost wholly of this color like the scapulars; lower back, rump, and upper tail coverts pale neutral gray to light neutral gray, the shafts faintly darker; rectrices light neutral gray narrowly tipped with whitish and crossed by a broad (25–35 mm.) subterminal black band, the inner webs of all but the median pair crossed by several narrow black incomplete bars on their basal halves (occasionally no such bars are present); lores and rather indefinite superciliary lines as forehead; cheeks and auriculars very pale buffy grayish with fine hairlike dusky shaft streaks, a mustachial stripe extending from the anterior angle of the eye to the sides of the throat deep neutral gray; chin and throat pale cartridge buff to creamy white sometimes to pale ochraceous-buff; breast, sides, abdomen, flanks, thighs, and under tail coverts light buff to grayish light pinkish cinnamon, the feathers of the upper breast with blackish to fuscous shaft streaks, those of the lower breast, upper abdomen, sides, and flanks with wedge-shaped subterminal spots of the same, these spots varying in size and number; middle of lower abdomen and under tail coverts uniform and usually more cinnamomeous then the rest of the underparts; thighs similar, but with a few dusky streaks or spots; under wing coverts whitish to whitish buff with dark fuscous spots; the axillars whitish barred with fuscous-brown; orbital area and cere yellow; bill bluish gray becoming blackish terminally; iris dark brown; tarsi and toes yellow; claws black.

Adult female.—Forehead cartridge buff to pale buff with dusky hairlike shafts on the feathers; crown, occiput, and nape light sayal brown with a cinnamomeous tinge, each feather with a heavy black shaft streak; back, rump, scapulars, interscapulars, upper wing and tail coverts slightly darker and slightly more rufescent than the head, broadly barred with fuscous, the dark bars narrower than the paler interspaces, the dark bars becoming somewhat narrower still on the lower back, rump, and upper tail coverts, which are often washed with gray; each feather with a very faintly dusky shaft; primaries as in male, but the whitish areas on the inner webs washed with cinna-

mon; secondaries barred cinnamon and dull fuscous-brown, the inner edge whitish like the tips, the innermost secondaries like the scapulars; rectrices like the lower back, but averaging slightly paler, more or less washed with grayish, tipped with whitish, crossed by a broad (15–20 mm.) subterminal fuscous-black band and by 10–12 narrow ones anterior to this; lores like the forehead; cheeks and auriculars less buff and the markings slightly duskier; mustachial stripe as in male but washed with earth brown and less well defined; rest of underparts as in male, but with the wedge-shaped spots averaging more numerous and larger, the thighs with more of the dark streaks; under wing coverts as in male; unfeathered areas and soft parts as in male.

Juvenal (sexes alike).—Similar to the adult female on the upperparts, but slightly darker, the fuscous bars wider, equal to the cinnamomeous interspaces on the upper back and scapulars, the cinnamomeous darker, more rufescent, the tail and lower back with very little grayish wash or none at all; underparts as in adult female, but more broadly streaked with fuscous to dark sepia, the abdomen streaked, not marked with wedge-shaped spots.

Natal down.—White, replaced by pale buffy grayish down on the upperparts as the bird grows.

Adult male.—Wing 230–258 (243.5); tail 150–180 (166.5); culmen from cere 13–15 (13.8); tarsus 38–41 (39.5); middle toe without claw 25–28 (26.5 mm.).[69]

Adult female.—Wing 235–270 (252.2); tail 141–170 (157.3); culmen from cere 14–18 (16); tarsus 40–42.5 (41.7); middle toe without claw 27–30 (28.5 mm.).[70]

Range.—Breeds in Europe from as far as latitude 70° N. in Scandinavia and latitude 63° N. in Russia, south to the Mediterranean and to north Africa to the northern limit of the Sahara; also in northern and western Asia (western Siberia east to Tarbagatai and Altai). Resident in the southern part of its range but absent in winter in the Shetlands, northern Scotland, northern Europe, and northern Asia generally.

Winters from England and southern Europe to Togoland and Nigeria, to Tanganyika Territory, India, China, and the Malay Peninsula.

Accidental in Iceland and Faroes, in Greenland (Cape Farewell, one record), and in Massachusetts (Nantasket Beach, one record).

Type locality.—Sweden.

Falco tinnunculus Linnaeus, Syst. Nat., ed. 10, i, 1758, 90 (Europe); ed. 12, i, 1766, 127.—Gmelin, Syst. Nat., i, pt. 1, 1788, 278.—Latham, Index Orn.,

[69] Seven European specimens.

[70] Five European specimens. For measurements of long series, see Hartert, Vög. pal. Fauna, ii, 1913, 1083.

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Falco fasciatus RETZIUS, Fauna Suecica, 1800, 70 ("Scania").

Cerchneis fasciata BREHM, Naumannia, 1855, 269.

Cerchneis murum BREHM, Vög. Deutschl., 1831, 70 (Feldhölzer Mountains).

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Cerchneis taeniura BREHM, Vogelfang, 1855, 28 (Germany).

Cerchneis intercedens BREHM, Vogelfang, 1855, 29 (Germany; rare).

Cerchneis accedens BREHM, Naumannia, 1855, 269 (nomen nudum).

Cerchneis guttata BREHM, Vogelfang, 1855, 29 (Egypt; rare in Germany).

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Tinnunculus alaudarius anceps BREHM, Verz.-Samml., 1866, 1 (nomen nudum).

Tinnunculus alaudarius longicaudus BREHM, Verz.-Samml., 1866, 1 (nomen nudum).

Tinnunculus alaudarius pallidus BREHM, Verz.-Samml., 1866, 1 (nomen nudum).

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Cerchneis perpallida CLARK, Prov. U. S. Nat. Mus., xxxii, 1907, 470 (Fusan, Korea).

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Falco Tinnunculus ultratinnunculus KLEINSCHMIDT, Falco, xxv, 1929, 35 (Wladikaukas, n. Caucasus).

FALCO SPARVERIUS SPARVERIUS Linnaeus

NORTHERN SPARROW HAWK

Adult male.—Forehead (narrow) and lores white; crown and occiput slate-gray to slate with a somewhat variable but usually fairly extensive (but sometimes almost wanting) patch of mikado brown to

cinnamon-rufous or hazel; nape, scapulars, interscapulars, back, rump, and upper tail coverts pale cinnamon-rufous to deep hazel, the nape usually slightly tinged with apricot buff and with a small concealed blackish spot, the scapulars and upper back crossed by a variable number of black bars, the bars usually somewhat wider in the middle producing a flat, wedge-shaped, appearance; usually only one such bar (subterminal) on any single feather of the upper back and smaller scapulars, the bars becoming broader posteriorly; upper wing coverts slate gray to slate marked with rather large and conspicuous cordate black spots, sometimes rather sparsely distributed, sometimes very numerous; primaries black with 6 to 9 broad transverse bars of white on the inner webs, the white areas broader than the black ones and widening toward the edge of the feather, where they are confluent; outermost primary conspicuously notched on inner web, the next one gently sinuated; second primary from outside the longest, then the third, first, and fourth (sometimes the third is equal to the second); primaries, especially the inner ones, narrowly tipped with white; secondaries basally black for two-thirds their length, then broadly slate and narrowly tipped with white, the inner webs crossed by 4 to 7 white bars similar to those of the primaries; tail rich hazel with a broad subterminal band (20–30 mm. wide) of black, and tipped fairly broadly (5–10 mm.) with white; the outermost rectrix with both webs white, the inner one crossed by four broad incomplete black bars anterior to the subterminal one; the next feather white on the terminal third of the outer web, which is crossed at the base of the white area by a black transverse spot, the inner web with a varying amount of white on its lateral margin in its terminal third;[71] superciliaries, chin, throat, cheeks, and auriculars white; a black mustachial stripe beginning in front of the bare anteorbital space and extending downward across the malar region; another black stripe crossing the posterior edge of the auricular area in the form of an oblong transverse dorso-

[71] There is an enormous amount of individual variation in the tail pattern, not correlated with age or geography. The extremes are as follows: U. S. N. M. No. 293641: All but the central pair of rectrices white crossed by the broad subterminal, and four narrower, but yet broad, black bands anterior to it, their basal third or less suffused with rich hazel, the median pair with the hazel more extensive, covering nearly half its length, the distal half slate crossed by three very incomplete and much narrower black bands and, of course, by the broad subterminal one. U. S. N. M. No. 309410: The outermost pair of rectrices white on the outer webs only which have four lengthwise black marks next to the shaft corresponding in position and length to the width of the bars in the preceding specimen, the inner web very pale cinnamon rufous with a broad subterminal black band; all the other rectrices rich hazel with a broad subterminal black band, all the feathers tipped with white. Between these two extremes, one finds all stages of intergrades.

ventral bar; a third and very much smaller black transverse mark, often hidden by the overlapping feathers, marks the lateral termination of the nape; breast, upper abdomen, sides, and flanks varying from light pinkish cinnamon to cinnamon, sometimes practically immaculate, sometimes with a very variable number of tear-shaped spots of black, the spots largest on the sides and flanks, smallest and fewest on the lower breast and upper midabdomen; lower abdomen, thighs, and under tail coverts white slightly suffused with buff to pale warm buff; under wing coverts white to very pale cartridge buff, spotted with black; iris dark brown; cere, orbits, tarsi, and toes from deep cadmium to reddish orange; claws black.

Adult female.—Entire head (top, sides, and lower surface) as in male, but the chestnut feathers of the crown usually with slate shafts; scapulars, interscapulars, back, rump, upper wing and tail coverts pecan brown to pale mikado brown barred with dark chaetura drab to chaetura black, the dark bars and the brown interspaces about equal in width except on the rump and upper tail coverts where the blackish marks are much narrower; primaries as in the male, but the whitish areas heavily tinged with pecan brown; secondaries as in the male, but with the slate replaced by pecan brown and the white areas tinged with the same; tail like the upper back, but slightly more hazel, crossed by a subterminal (5–10 mm.) and 9 to 11 narrower black bands, the outer web of the outermost pair irregularly edged with whitish; throat, white; rest of underparts white to pale cartridge buff, the breast, sides, flanks, and upper abdomen streaked with fairly pale tawny-olive to pale Saccardo's umber; thighs, lower abdomen, and under tail coverts immaculate; under wing coverts white to pale cartridge buff transversely spotted and incompletely and irregularly barred with pale tawny-olive to pale Saccardo's umber; soft parts as in male, the cere, orbits, tarsi, and toes usually slightly paler, more yellowish, less orange.

Juvenal male.—Similar to the adult male, but with the black bars on the scapulars and upper back averaging broader and more numerous and with the breast and upper midabdominal spots replaced by short, narrow, streaks, and the feathers of the crown and occiput usually with dark shafts; soft parts as in adult female, but usually still paler, the tarsi and toes often dull ocher yellow.

Juvenal female.—Similar to the adult female, but the ventral streaks darker, Saccardo's umber to pale sepia, and with the under surface usually washed with pale ochraceous; soft parts as in juvenal male.

Natal down.—White.

Adult male.—Wing 174–198 (183.1); tail 116–142 (129.4); culmen

from cere 11–13 (11.9); tarsus 35–41 (38.2); middle toe without claw 21–25 (22.8 mm.).[72]

Adult female.—Wing 178–207 (195); tail 119–142 (129.5); culmen from cere 11–15 (12.4); tarsus 34–42 (38); middle toe without claw 20–26 (23.0 mm.).[73]

Range.—Breeds from the limit of trees in Alaska (Circle, Craig, Fort Selkirk, Juneau, Log Cabin, Portage Bay, Semenow Hills, Stikine River, Taku River, Unalaska, Wrangell, Yukon River); northwestern and central Mackenzie and Alberta (Buffalo Lake, Fort Carleton, Moose Factory, Fort Roe, Fort Good Hope, York Factory); northern Manitoba and Ontario (Port Arthur, Favourable Lake, Fraserdale, Lake Attawapiskat); Quebec (Point de Monte, Gaspé County); Newfoundland; and Nova Scotia; south through Canada and the United States through California (Fort Creek, Baird, Mount Whitney, Coarsegold, San Diego County, Ventura County, Red Bluff); to northern Baja California (Seven Wells, Salton River; La Grulla; Natividad Island; Guadalupe Island; San José del Cabo; Todos Santos Island; Santa Margarita and Magdalena Islands; Las Cruces; Valle de las Palmas; Sierra San Pedro Mártir; Colorado River; et cetera); northwestern Mexico (south to Mazatlán, San Blas, Acapulco Gúerrero); southeastern Texas (Brownsville); northern Alabama; northern Georgia.

Winters from southern British Columbia; Kansas; Iowa; Illinois; southern Ontario; southern Michigan, southern Maine (rare); southern Vermont and New Hampshire south through the United States to Mexico (throughout); Guatemala (Barrillos, Capetillo, Cobán, Constancia, Dueñas, Gualan, Iguanos, Finca Carolina, Los Amates, La Montanita, La Perla, Volcán de Agua, San Gerónimo, Tactic, Tecpam, San Lucas, Secanquin, etc.); British Honduras (El Cayo); Honduras (Lancetilla, Omoa, San Pedro, Tigre Island, Bay of Fonseca); Nicaragua (Chontales, Great Corn Island, La Libertad, San Rafael del Norte, León, Río Escondido, San Juan del Sur, Sucuya);

[72] Sixty-four specimens from all parts of the range: Mexico; California; Oregon; Washington; Arizona; New Mexico; Nevada; Utah; Idaho; Wyoming; Montana; Mississippi; North and South Carolina; District of Columbia; Illinois; New York; Maryland; Pennsylvania; etc. There is no constant appreciable difference between southwestern birds ("*phalaena*") and eastern ones. All of the supposed *phalaena* measured were summer specimens.

[73] Sixty-eight specimens from all parts of the range: Mexico; California; Oregon; Washington; British Columbia; Arizona; New Mexico; Nevada; Wyoming; Montana; Colorado; North Dakota; Florida; Mississippi; Tennessee; Illinois; Virginia; District of Columbia; Maryland; New York; et cetera. No constant or significant geographic variations occur in this series (all "*phalaena*" breeding birds).

Costa Rica (San José, Orosi, Alajuela, Cartago, Reventazon, Jiménez, Guayabo, Coliblanco, Talamanca, Miravalles, Irazú, Juan Viñas, La Palma, Gulf of Nicoya); to Panama (common throughout—Santa Fe de Veraguas, Calabre; Volcán de Chiriquí; Quebrada Nigua; Almirante; Banana River; Gatun; La Bosca; etc.); and to the Bahama Islands (Andros, New Providence, Great Stirrup Key, Acklin, Great Inagua, Abaco).

Type locality.—South Carolina.

Falco sparverius LINNAEUS, Syst. Nat., ed. 10, pt. 1, 1758, 90 (America, i. e., South Carolina; based on *Accipiter minor, The Little Hawk*, Catesby, Nat. Hist. Carolina, i, 1731, 5, pl. 5); ed. 12, i, 1766, 128.—LATHAM, Index Orn., i, 1790, 42.—SHAW, Gen. Zool., vii, 1809, 199, pl. 26, part.—WILSON, Amer. Orn., ii, 1810, 117, pl. 16, fig. 1; iv, 1811, pl. 32, fig. 2.—VIEILLOT, Nouv. Dict. Hist. Nat., xi, 1817, 99, part (Carolina); Encycl. Méth., iii, 1824, 1234, part.—BONAPARTE, Journ. Acad. Nat. Sci. Philadelphia, iii, pt. 2, 1824, 343; Ann. Lyc. Nat. Hist. New York, ii, pt. 1, 1826, 27; Obs. Wilson's Amer. Orn., 1826, 4, [239]; Contr. Maclurian Lyc., i, 1827, 10.—STEPHENS, *in* Shaw's Gen. Zool., xiii, pt. 2, 1826, 38 (North America).—CUVIER, Règne Anim., ed. 2, i, 1829, 322.—AUDUBON, Birds Amer., fol. ed., 1831, pl. 142; 8vo ed., i, 1840, 90, pl. 22; Orn. Biogr., ii, 1834, 246 [pl. 142]; v, 1839, 370; Synopsis, 1839, 17.—LESSON, Traité d'Orn., 1831, 95, part.—SWAINSON and RICHARDSON, Fauna Bor.-Amer., ii, 1831, 31, pl. 24.—NUTTALL, Man. United States and Canada, Land Birds, 1832, 58; ed. 2, 1840, 62, 821.—TOWNSEND, Journ. Acad. Nat. Sci. Philadelphia, viii, 1839, 151 (nw. United States).—VIGORS, Zool. Voy. *Blossom*, 1839, 15 (Monterey, Calif.).—PEABODY, Orn. Massachusetts, 1841, 69.—DEKAY, Zool. New York, ii, 1844, 16, pl. 7.—GIRAUD, Birds Long Island, 1844, 16 (Long Island, N. Y.; not very plentiful).—JARDINE, Contr. Orn., 1848, 81 (Bermuda, autumnal visitor).—HURDIS, *in* Jardin's Contr. Orn., 1850, 37 (Bermuda).—BAIRD, *in* Stansbury's Rept. Great Salt Lake, 1852, 325 (New Mexico); Cat. North Amer. Birds, 1859, No. 13.—HARTLAUB, Naumannia, 1852, 52 (crit.).—HOY, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 305 (Wisconsin).—READ, Proc. Acad. Nat. Sci. Philadelphia, vi, 1853, 395 (Ohio).—WAILES, Geol. Surv. Mississippi, 1854, 320 (Mississippi).—HENRY, Proc. Acad. Nat. Sci. Philadelphia, vii, 1855, 307 (New Mexico); xi, 1859, 104 (New Mexico).—KENNICOTT, Trans. Illinois Agr. Soc., i, 1855, 581 (Illinois).—HAYMOND, Proc. Acad. Nat. Sci. Philadelphia, viii, 1856, 287 (Franklin County, Ind.).—SCLATER, Proc. Zool. Soc. London, 1857, 125 (California).—CASSIN, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 13.—MAXIMILLIAN, Journ. für Orn., vi, 1858, 15 (upper Missouri River).—BAIRD, Cat. North Amer. Birds, 1859, No. 13.—BLAND, Ann. Rep. Smiths. Inst. for 1858 (1859), 289 (Bermuda).—MARTENS, Journ. für Orn., 1859, 212 (Bermuda).—WILLIS, Ann. Rep. Smiths. Inst. for 1858 (1859), 281 (Nova Scotia, breeding).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., ii, book 2, 1860, 143 (Puget Sound, etc., Wash.; The Dalles, Oreg.; habits).—SCHLEGEL, Mus. Pays-Bas, ii, No. 2, livr. i, 1862, 30 (monogr.); No. 36, livr. 10, 1873, 45.—BLAKISTON, Ibis, 1863, 44 (Red River Settlement; Fort Carleton; interior nw. Canada).—LORD, Proc. Roy. Artill. Inst. Woolwich, iv, 1864, 110 (Brit. Columbia).—BROWN, Ibis, 1868, 418 (Vancouver Island).—COUES, Proc. Acad. Nat. Sci. Philadelphia, xx, 1868, 82 (Arizona); Key North Amer. Birds, 1872, 215; Check-list North Amer. Birds, 1873, No.

346, part; ed 2, 1882, No. 508; Key North Amer. Birds, ed. 2, 1884, 537.—Cooper, Orn. California, Land Birds, 1870, 462.—Trippe, Comm. Essex Inst., vi, 1871, 113 (Minnesota; common; breeds).—Allen, Proc. Boston Soc. Nat. Hist., xvii, 1874, 34 (Montana and Dakota; very abund.).—Hatch, Bull. Minnesota Acad. Nat. Sci., 1874, 51 (Minnesota; abund. summer res.).—Ridgway, Bull. Essex Inst., vi, 1874, 186 (Colorado); vii, 1874, 171 (Sacramento, Calif.); Ann. Lyc. Nat. Hist. New York, x, 1874, 379 (Illinois); Proc. Boston Soc. Nat. Hist., xvi, 1874, 23, 324 (lower Wabash Valley; res.); Bull. Essex Inst., vii, 1875, ii (Carson, Nev.), 13 (Truckee Valley and Carson City, Nev.), 21 (Ruby Mountains, Nev.), 31 (Salt Lake Valley, Utah), 34 (Parleys Peak, Utah); Orn. 40th Parallel, 1877, 578 (California, Nevada, and Utah); Man. North Amer. Birds, 1887, 252; Orn. Illinois, i, 1889, 436.—Boies, Cat. Birds Southern Michigan, 1875, No. 135 (s. Michigan; summer).—Henshaw, Zool. Expl. 100th Merid., 1875, 413 (localities in Nevada, Utah, Colorado, and Arizona).—Hoffman, Proc. Boston Soc. Nat. Hist., xviii, 1875, 173 (Grand River Agency, Dakota Terr.).—Nelson, Proc. Boston Soc. Nat. Hist., xvii, 1875, 342 (Fort Bridger, Utah), 354 (n. of Elko, Nev.); Bull. Essex Inst., viii, 1876, 118 (ne. Illinois; abund. migr.; common summer res.); ix, 1877, 42 (s. Illinois), 50 (Fox Prairie, Ill.), 62 (Anna, Ill.), 57 (Cairo, Ill.), 65 (s. Illinois).—Bendire, Proc. Boston Soc. Nat. Hist., xix, 1877, 134 (Camp Harney, Oreg.; very common; eggs).—Gibbs, U. S. Geol. and Geogr. Surv. Bull. 5, No. 3, 1879, 490 (Michigan; breeds).—Langdon, Journ. Cincinnati Soc. Nat. Hist., 1879, 13 (Cincinnati, Ohio; summer; occas. winter).—Cory, Birds Bahama Islands, 1880, 130 (New Providence; Great Stirrup Key); Auk, iv, 1887, 43; Birds West Indies, 1889, 201 (Santo Domingo?); Birds West Indies, 1892, 99, 139 (New Providence Island, Bahamas, Cuba, Haiti, St. Johns, Tortola, Anegada, St. Croix); Publ. Field Mus. Nat. Hist., No. 131, 1909, 481 (Illinois; Wisconsin).—Merriam, Bull. Nuttall Orn. Club, vii, 1882, 237 (Point de Monts, Quebec, 1 spec., May 5, 1882).—Wheaton, Rept. Birds Ohio, 1882, 425 (Ohio; syn.; descr.).—Cubas, Cuadro Geogr., Estadístico, Descr. e Hist. de los Estados Unidos Mexicanos, 1884, 170 (Mexico; common names).—Reid, U. S. Nat. Mus. Bull. 25, 1884, 220 (Bermuda; 1 spec., Dec. 9, 1853).—American Ornithologists' Union, Check-list, 1886, and ed. 2, 1895, No. 360; ed. 3, 1910, 166.—Seton, Auk, iii, 1886, 154 (Manitoba, abund. summer res.).—Zeledón, Anal. Mus. Nac. Costa Rica, i, 1887, 125 (San José, Alajuela, and Cartago, Costa Rica).—Mearns, Auk, vii, 1890, 54 (Arizona); ix, 1892, 257 (geogr. range).—Goss, Hist. Birds Kansas, 1891, 287 (Kansas).—Hatch, Notes Birds Minnesota, 1892, 202, 456 (Minnesota; descr.; food; habits).—Fisher, Hawks and Owls United States, 1893, 115, pl. 17.—Nutting, Bull. Iowa State Lab. Nat. Hist., ii, 1893, 269 (Grand Rapids, lower Saskatchewan; abund.).—Cooke, Colorado State Agr. Coll. Bull. 37, 1897, 76 (Colorado; abund. res.); Colorado Agr. Exp. Stat. Bull. 56, 1900, 204 (Fort Collins, Colo.; 1 spec.).—Lantz, Trans. Kansas Acad. Sci., 1896–97 (1899), 256 (Kansas; abund. res.).—Bishop, North Amer. Fauna, No. 19, 1900, 75 (Log Cabin, Semenow Hills, near Tatchum River, near Fort Selkirk, Circle, etc., Alaska).—Grinnell, Pacific Coast Avif., No. 1, 1900, 76 (Kotzebue Sound region, Alaska; doubtful rec.); Condor, xxxv, 1933, 236, in text (Trinity County, Calif.; food habits).—Nash, Check List Birds Ontario, 1900, 31 (Ontario; common in summer); Check List Vert. Ontario; Birds, 1905, 42 (Ontario).—Fleming, Auk, xviii, 1901, 38 (Parry Sound and Muskoka, n. Ontario; breeding).—McGregor, Pacific Coast Avif., No. 2, 1901, 7 (Santa Cruz County,

(Calif.).—Allen, Proc. Manchester Inst. Sci. and Arts, iv, 1902, 103 (N. H., rare summer res.).—Bailey, Handb. Birds Western United States, 1902, 170 (descr.; distr.).—Preble, North Amer. Fauna, No. 22, 1902, 108 (Red River, June 14; Sea Falls, 2 miles n. of Norway House, June 23; Hays and Steel Rivers, Aug. 30, Sept. 1; Nelson River, Moose Factory; York Factory); No. 27, 1908, 364 (n. to Fort Rae and lower Mackenzie River; localities).—Woodcock, Oregon Agr. Exp. Sta. Bull. 68, 1902, 35 (Oregon range).—Dawson, Birds Ohio, 1903, 390, 653, pl. 45 (Ohio; descr.; fig.; distr.; habits).—Jones, Birds Ohio, rev. cat., 1903, 99 (Ohio).—Kumlien and Hollister, Bull. Wisconsin Nat. Hist. Soc., iii, 1903, 67 (Wisconsin).—Stockard, Auk, xxii, 1905, 153 (breeding habits in Mississippi).—Townsend, Mem. Nuttall Orn. Club, No. 3, 1905, 213 (Essex County, Mass.; common summer).—Brewster, Mem. Nuttall Orn. Club, No. 4, 1906, 193 (Cambridge region, Mass.; habits; eggs).—Hall, Wils. Bull., No. 57, 1906, 124 (w. Adirondacks, rare).—Swales and Taverner, Wils. Bull., No. 55, 1906, 64 (Lake Muskoka, Ontario).—Anderson, Proc. Davenport Acad. Sci., xi, 1907, 257 (Iowa; habits).—Taverner and Swales, Wils., Bull., No. 60, 1907, 93 (Point Pelee, Ontario).—Widmann, Birds Missouri, 1907, 103 (res.).—Knight, Birds Maine, 1908, 246 (summer res.).—Stone, Birds New Jersey, 1908, 167 (New Jersey); Proc. Acad. Nat. Sci. Philadelphia, lxxxiv, 1922, 301 (Honduras: San Juancito, San Pedro, Omoa, Lancetilla, Tigre Island; Fonseca Bay).—Dawson and Bowles, Birds Washington, ii, 1909, 539 (Washington; habits; distr.).—Ferry, Publ. Field Mus. Nat. Hist., No. 146, orn. ser., i, No. 6, 1910, 260 (Guayabo and Coliblanco, Costa Rica; crit.).—Wayne, Birds South Carolina, 1910, 79 (rare res. on coast, common migr.).—Sclater, Hist. Birds Colorado, 1912, 190 (Colorado; summer; few winter).—Zimmer, Proc. Nebraska Orn. Union, v, pt. 5, 1913, 75 (Thomas County Forest Reserve, Nebr.).—Bonnot, Condor, xxiii, 1921, 136, in text (captures cliff swallows).—Hellmayr, Nov. Zool., xxviii, 1921, 188 (crit.).—Stephens, Condor, xxiii, 1921, 96 (1 seen, Coronado Island, Mexico).—Griscom, Birds New York City Region, 1923, 198 (status).—Johnston, Birds West Virginia, 1923, 18, 88 (West Virginia).—Michael, Condor. xxvii, 1925, 110 (Yosemite).—Miller, *in* Chaney, Miller, and Dice, Carnegie Inst. Washington Publ. 349, 1925, 99 (Rancho La Brea; bones).—Allen, Condor, xxx, 1928, 362, in text (Gold Lake region, n. Sierra Nevada).—Munro, Condor, xxxi, 1929, 115 (food habits); Can. Journ. Res., D, xxiii, 1945, 57 (Brit. Columbia; Cariboo Parklands; summer res.).—Howard, Condor, xxxii, 1930, 84 (Pleistocene remains, Rancho La Brea).—Low, Bull. Brit. Orn. Club, li, 1930, 15, in text (near Banff, Alberta).—Michener, Condor, xxxii, 1930, 212 (banding, Pasadena, Calif.).—Christy, Auk, xlviii, 1931, 367 (change of local status, Sandusky Bay, Lake Erie).—Snyder, Auk, xlviii, 1931, 118, in text (paired ovaries); Trans. Roy. Can. Inst., xxii, 1938, 185 (w. Rainy River district, Ontario; not common but regularly observed; breeds, 2 female specs.).—Groebbels, Der Vögel, i, 1932, 284, in text (food), 664 (body temperature).—Guthrie, Wils. Bull., xliv, 1932, 103, in text (food habits; eats snakes).—Miller, Condor, xxxiv, 1932, 138 (bones from Indian dwelling, Arizona).—van Rossem, Trans. San Diego Soc. Nat. Hist., vii, No. 12, 1932, 132 (Tiburón Island, Sonora, Mexico).—Errington, Condor, xxxv, 1933, 25 (food habits in Wisconsin).—Howard and Miller, Condor, xxxv, 1933, 16 (bones, Organ Mountains, N. Mex.).—Sumner, Condor, xxxv, 1933, 231, in text (Sacramento County, Calif.; young from same nest as owl); xlii, 1940, 39, in text (Pomona, Calif.; 1 band. return).—De Groot, Condor, xxxvi, 1934, 7, in text (Eldorado County, Calif.; nest.).—Fitzpatrick, Wils. Bull., xlvi, 1934, 22, in text (bilateral ovaries in 1 spec.).—McCreary, Wils. Bull., xlvi,

1934, 123, in text (Wheatland, Wyo.; winter record); Condor, xxxvi, 1934, 170, in text (Goshen County, Wyo.; winter records).—Nice, Wils. Bull., xlvi, 1934, 94, in text (16 seen, no locality!); Bird-Banding, ix, 1938, 106, in text (Pasadena, Calif.; homing habits) Auk, lviii, 1941, 404, in text (Illinois; Missouri; Oklahoma; winter and spring records).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 11 (w. Panhandle of Oklahoma; crit.).—Taverner, Birds Canada, 1934, 148 (Canada; genl.; col. pl. xvii-a [male and female]); Can. Water Birds, 1939, 162 (field characters; Canada).—Taverner and Sutton, Ann. Carnegie Mus., xxiii, 1934, 29 (Churchill, Manitoba; uncommon and irregular autumnal visitant).—Lofberg, Condor, xxxvii, 1935, 172, in text (Fresno County, Calif.; habits).—Miller, Condor, xxxvii, 1935, 77, in text (McKittrick, Calif.; Pleistocene bones).—Youngworth, Wils. Bull., xlvii, 1935, 217, in text (Fort Sisseton; common summer res.).—Baillie and Harrington, Contr. Roy. Ontario Mus. Zool., No. 8, pt. 1, 1936, 27 (Ontario; fairly common and well-distributed breeder; breeding range).—Bond, Condor, xxxviii, 1936, 85, in text (flight); Birds West Indies, 1936, 76, 80 (West Indies; descr.; Bahamas: New Providence, Watling Island, Great Stirrup Cay, doubtfully from Hispaniola).—Ewan, Condor, xxxviii, 1936, 84, in text (Plumas County, Calif.; common in summer).—Grinnell and Linsdale, Vert. Animals Point Lobos Reserve, 1936, 39, 57 (Point Lobos, Calif.; common; nesting; habits).—Johnson, Auk, liii, 1936, 210, in text (as Paiute pets).—Lincoln, Bird-Banding, vii, 1936, 43 (4 banding recoveries).—Arnold, Condor, xxxix, 1937, 32, in text (Coalinga, Calif.; abund.; nest.).—Bagg and Eliot, Birds Connecticut Valley in Massachusetts, 1937, 166 (habits).—Carter, Condor, xxxix, 1937, 212, in text (San Bernardino County, Calif.; occas. seen).—del Campo, Anal. Inst. Biol., viii, Nos. 1, 2, 1937, 268 (Hidalgo, Valley del Mezquital; spec.).—Dixon and Bond, Condor, xxxix, 1937, 97, in text (Tule Lake vicinity, California; 12 pairs nesting).—Pierce, Condor, xxxix, 1937, 137, in text (habits of a pet one).—Shortt and Waller, Contr. Roy. Ontario Mus. Zool., No. 10, 1937, 17 (Lake St. Martin region, Manitoba; not common; spec.).—Stoner, Condor, xxxix, 1937, 39, in text (Benicia, Calif.; nesting).—Baldwin and Kendeigh, Auk, lv, 1938, 442, in text (weight).—Breckenridge and Errington, Auk, lv, 1938, 669, in text (Iowa; food habits).—Cushing, Condor, xli, 1939, 103, in text (habits).—Hargrave, Condor, xli, 1939, 207, 209, in text (Flagstaff, Ariz.; prehist. bones).—Rowley, Condor, xli, 1939, 248, in text (Mono County, Calif.; nest.).—Ricker and Clarke, Contr. Roy. Ontario Mus. Zool., xvi, 1939, 8 (Lake Nipissing, Ontario; common; spec.).—Wing, Condor, xli, 1939, 168, in text (Norris, Tenn.; food habits of captive spec.).—Allin, Trans. Roy. Canadian Inst., xxiii, pt. 1, 1940, 96 (Darlington Township, Ontario; common summer res.).—Craighead, Wils. Bull., lii, 1940, 243, in text (call).—Ingles, Condor, xlii, 1940, 104, in text (Chico, Calif.; predation habits in captivity).—Lack, Auk, lvii, 1940, 175, in text (habits).—Sutton and Burleigh, Auk, lvii, 1940, 237, text (Las Vigas, Veracruz; 1 seen); Condor, xlii, 1940, 259, text (San Luis Potosí, Mexico; not common).—Engels, Auk, lviii, 1941, 63, 65, in text (skeletal ratios).—Hand, Condor, xliii, 1941, 225 (St. Joe National Forest, Idaho).—Snyder et al., Contr. Roy. Ontario Mus. Zool., No. 19, 1941, 45 (Prince Edward County, Ontario; uncommon, more likely during migration than in summer; 1 nesting pair found in summer 1935).—Sutton and Burleigh, Ann. Carnegie Mus., xxviii, 1941, 171 (Hidalgo, near Zimapan, and near Jacala); Condor, lix, 1942, 418 (Mexico City and Puebla, Mexico; 8,000–11,000 feet).—Seibert, Condor, xliv, 1942, 68 (San Francisco, Calif.).—Sutton and Pettingill, Auk, lix, 1942, 10 (Gómez Farias region,

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Cerchneis sparveria sparveria Oberholser, Auk, xxxiv, 1917, 201.—Stone, Proc. Acad. Nat. Sci. Philadelphia, 1918, 250 (Panama Canal Zone).—Swann, Synopt. List. Accip., pt. 4, 1920, 154.—American Ornithologists' Union, Auk, xl, 1923, 518.—Jackson, Auk, xl, 1923, 482 (Mamie Lake, Wis.).—Beck, Auk, xli, 1924, 292, in text (Pennsylvania German common names).—Gabrielson and Jewett, Auk, xli, 1924, 298 (common, North Dakota).—Howell, Birds of Alabama, 1924, 142; ed. 2, 1928, 142 (distr.; habits; Alabama).—Mitchell, Can. Field Nat., xxxviii, 1924, 109 (Saskatchewan; common summer vis.).—Nice and Nice, Birds of Oklahoma, 1924, 24 (genl.; Oklahoma).—Bailey, Birds Florida, 1925, 72, pl. 39 (col. fig.; descr.; Florida).—Blincoe, Auk, xlii, 1925, 409 (Bardstown, Ky.).—Friedmann, Auk, xlii, 1925, 545 (lower Rio Grande Valley, Tex.).—Griscom and Crosby, Auk, xlii, 1925, 536 (Brownsville, Tex.).—Pindar, Wils. Bull., xxxvii, 1925, 86 (Fulton County, Ky.).—Schorger, Auk, xlii, 1925, 66 (summer, Lake Owen, Bayfield County, Wis.).—Simmons, Birds Austin Region, 1925, 108 (Austin, Tex.; descr.; habits; distr.).—Fargo, Wils. Bull., xxxviii, 1926, 149 (Pinellas and Pasco Counties, Fla.).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 429 (habits, s. Florida).—Kelso, Ibis, 1926, 703 (Arrow Lakes, Brit. Columbia; summer).—Swarth, Univ. California Publ. Zool., xxx, 1926, 113 (Carcross, Gladys Lake, Brit. Columbia).—Williams, Wils. Bull., xxxviii, 1926, 91 (Red River Valley, ne. North Dakota).—Bent and Copeland, Auk, xliv, 1927, 381 (Long Key, Fla.).—Forbush, Birds Massachusetts and Other New England States, ii, 1927, 44 pl. 38, (col. fig.; descr.; habits; New England).—Lindsdale and Hall, Wils. Bull., xxxix, 1927, 96 (Lawrence, Douglas County, Kans.).—Mailliard, Proc. California Acad. Sci., ser. 4, xvi, 1927, 300 (Modoc, County, Calif.).—Smyth, Auk, xliv, 1927, 53 (near Pratt and Coolidge, Kans.).—Larson, Wils. Bull., xl, 1928, 47 (e. McKenzie County, N. Dak.).—Linsdale, Univ. Kansas Sci. Bull., xviii, 1928, 539 (near Geary, e. Kansas).—Pickens, Wils. Bull., xl, 1928, 190 (South Carolina).—Snyder, Trans. Roy. Can. Inst., xvi, pt. 2, 1928, 260 (Lake Nipigon, Ontario; summer).—Cahn and Hyde, Wils. Bull., xli, 1929, 36 (ecol., distr.; Little Egypt, Ill.).—Cooke, Proc. Biol. Soc. Washington, xlii, 1929, 37 (Washington, D. C.).—Hoffman, Wils. Bull., xli, 1929, 194, in text (nesting; young; Lakewood, Ohio).—Brooks, Wils. Bull., xlii, 1930, 247 (Cranberry Glades, W. Va.).—Pierce, Wils. Bull., xlii, 1930, 269 (Buchanan County, Iowa).—Racey, Murrelet, xi, 1930, 70, in text (Peace River, Brit. Columbia).—Snyder, Trans. Roy. Can. Inst., xvii, 1930, 188 (summer; King Township, Ontario).—[Arthur], Birds Louisiana, 1931, 212, in text (descr.; stat.; Louisiana).—Bailey and Wright, Wils. Bull., xliii, 1931, 264 (s. Louisiana).—Burleigh, Wils. Bull., xliii, 1931, 40 (breeding; State College, Pa.).—Snyder and Logier, Trans. Roy. Can. Inst., xviii, pt. 1, 1931, 182 (Long Point area, Norfolk County, Ontario).—Griscom, Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 165 (distr.; Guatemala).—Willett, Pacific Coast Avif., No. 21, 1933, 48 (syn.).—Oberholser, Bird Life Louisiana, 1938, 186 (Louisiana; winter; distr.; habits; food).—Aldrich and Nutt, Sci. Publ. Cleveland Mus. Nat. Hist., iv, 1939, 19 (e. Newfoundland, near St. Johns).—del Campo, Anal. Inst. Biol., xiii, No. 2, 1942, 701 (Chiapas: Prusia; spec.).

Cerchneis sparverius sparverius Swann, Synop. Accip., pt. 4, 1922, 222.—Dawson, Birds California (stud. ed.), iii, 1923, 1636 (genl.; California).—Christy, Wils. Bull., xxxvii, 1925, 211 (summer; Huron Mountain, Mich.).—Lincoln,

Auk, xlii, 1925, 61 (Devils Lake, N. Dak.).—Cahn, Wils. Bull., xxxix, 1927, 28 (summer; Vilas County, Wis.).—Jung, Auk, xlvii, 1930, 537 (Peace and Athabasca Rivers, Alberta).—Griscom, Bull. Mus. Comp. Zool., lxxii, 1932, 318 (Permé, Panama).

Paecilornis sparverius Salle and Parzudaki, Cat. Oiseaux Mexique, 1862, 1 (Mexico).

Poecilornis sparverius Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 260 (Jalapa, Veracruz; localities in California).

Falco noveboracensis Gmelin, Syst. Nat., i, 1788, 284 (based on "New York Merlin" Latham, Gen. Syn. Birds (New York)).

Tinnunculus phalaena Lesson, Écho du Monde Savant, 12e ann., 1845, 1086 (San Blas, Tepic; Acapulco, Guerrero).

Falco sparverius phalaena Nelson, Auk, xix, 1902, 398, in text (crit.).—Swenk, Auk, xxii, 1905, 320 (Florence and Lincoln, Nebr.).—Dearborn, Publ. Field Mus. Nat. Hist., No. 125, 1907, 83 (Los Amates and Gualán, Guatemala).—Linton, Condor, x, 1908, 127 (Santa Cruz Island, Calif.).—American Ornithologists' Union, Check-list, ed. 3, 1910, 167; ed. 4, 1931, 77; Auk, lxii, 1945, 439 (nomencl.).—Carriker, Ann. Carnegie Mus., vi, 1910, 470 (Costa Rica; crit.).—Saunders, Auk, xxviii, 1911, 36 (Gallatin County, Mont., summer res.); Pacific Coast Avif., No. 14, 1921, 66 (Montana; abund.; summer).—Zimmer, Proc. Nebraska Orn. Union, v, pt. 2, 1911, 22 (Dawes County, nw. Nebraska; breeds).—Riley, Can. Alpine Journ., 1912, 61 (Prairie Creek, Miette River, and Moose Pass branch of Smoky River, Alberta; Yellowhead Lake, Brit. Columbia).—Sclater, Hist. Birds Colorado, 1912, 192 (Colorado localities).—Willett, Pacific Coast Avif., No. 7, 1912, 49 (Pacific slope of s. California; very common; eggs); No. 21, 1933, 48 (crit.).—Grave and Walker, Birds Wyoming, 1913, 43 (Wyoming).—Lincoln, Proc. Colorado Mus. Nat. Hist., 1915, 7 (Yuma County, Colo.; prevalent form); Auk, xxxvii, 1920, 66 (Clear Creek district, Colo.; the common breeding form).—Brooks, Auk, xxxiv, 1917, 39 (Chilliwack, Brit. Columbia, res.).—Howell, Pacific Coast Avif., No. 12, 1917 (Santa Barbara Islands, Calif.; res.?).—Shelton, Univ. Oregon Bull., new ser., xiv, No. 4, 1917, 20, 27 (wc. Oregon; res.).—Burleigh, Auk, xxxviii, 1921, 554 (Lincoln County, Mont., breeding); xlvi, 1929, 511 (Seattle, Wash.).—Wetmore, Condor, xxiii, 1921, 61 (Williams, Ariz.; common).—Gabrielson, Condor, xxiv, 1922, 34, in text (Harney Valley, Oreg.); Auk, xli, 1924, 556 (Wallowa County, Oreg.).—Townsend, Bull. Amer. Mus. Nat. Hist., xlviii, 1923, 14 (San Benito Island, Lower California, Mar. 9; San José del Cabo, March 26).—Wood, Univ. Michigan Mus. Zool. Misc. Publ., No. 10, 1923, 43, (Grafton and Devils Lake, N. Dak.; spec.).—Van Denburgh, Condor, xxvi, 1924, 70 (Todos Santos Islands).—Gardner, Proc. U. S. Nat. Mus. lxvii, 1925, 15, in text, pl. 6 (structure of tongue).—Wyman and Burnell, Field Book Birds Southwestern United States, 1925, 108 (descr.; characters).—Bruner, Condor, xxviii, 1926, 232 (Baboquivari Mountains, Ariz.).—Taverner, Birds Western Canada, 1926, 210, in text.—Bergtold, Auk, xliv, 1927, 29, in text (Colorado; crit.).—Tanner, Condor, xxix, 1927, 198 (Virgin River Valley, Utah).—Bailey, Birds New Mexico, 1928, 193 (genl., New Mexico).—Cowles, Condor, xxx, 1928, 327, in text (food habits).—Grinnell, Univ. California Publ. Zool., xxxii, 1928, 112 (distr., Lower California).—Meadows, Condor, xxx, 1928, 250, in text (near Avalon, Calif.); xxxi, 1929, 130 (near Avalon, Calif.).—Pemberton, Condor, xxx, 1928, 147 (Santa Rosa Island).—Weydemeyer, Condor, xxx, 1928, 246 (Fortine, Great Falls, and Bozeman, Mont.; winter).—Hendee, Condor,

xxxi, 1929, 25 (nesting, Moffat County, Colo.).—Miller, Taylor, and Swarth, Condor, xxxi, 1929, 77, in text (Tucson, Ariz.; winter).—Sumner, Condor, xxxi, 1929, 85, in text (growth of young).—Grinnell, Dixon, and Linsdale, Univ. California Publ. Zool., xxxv, 1930, 97 (distr., Lassen Peak region, n. California).—Nice, Birds Oklahoma, rev. ed., 1931, 78 (genl.; Oklahoma).—Peters, Check-list Birds of World, i, 1931, 303.—Stanford, Auk, xlviii, 1931, 620 (Sevier County, Utah); Proc. Utah Acad. Sci., ix, 1932, 73 (n. Utah; very common in fields).—van Rossem, Trans. San Diego Soc. Nat. Hist., vi, 1931, 244 (Sonora, Mexico); vii, 1932, 132, in text (Sonora, Mexico; res.).—Cumming, Murrelet, xiii, 1932, 7 (Vancouver, Brit. Columbia).—Wright, Condor, xxxiv, 1932, 43 (eats bats).—Swarth, Condor, xxxv, 1933, 40 (Guadalupe Island, Mexico).—Tyler, Condor, xxxv, 1933, 186, in text (habits).—Sutton, Ann. Carnegie Mus., xxiv, 1934, 11, in text.—Benson, Univ. California Publ. Zool., xl, 1935, 443 (Navajo Mountains, Utah).—Brodkorb, Auk, lii, 1935, 183, in text (Grafton, N. Dak.; gynandromorph).—Long, Univ. Kansas Sci. Bull., xxxvi, 1935, 232 (w. Kansas, Nov.).—McCreary and Mickey, Wils. Bull., xlvii, 1935, 136, in text (se. Wyoming; migr. stat.).—Bond, Condor, xxxviii, 1936, 72, in text (food and feeding habits), 178, in text (live weight of one bird).—Monson, Condor, xxxviii, 1936, 175, in text (Papago Indian Reservation, Ariz. common).—Groebbels, Der Vögel, ii, 1937, 104, in text (sex relations), 116, in text (nesting close to other species), 170 (data on breeding biology).—Hargrave, Condor, xli, 1939, 207, in text (bone meas.).—Burleigh and Lowery, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 8, 1940, 98, in text (range).—Hanna, Condor, xlii, 1940, 218, in text (Mohave Desert, Calif.; nest.).—Long, Trans. Kansas Acad. Sci., xliii, 1940, 440 (Kansas; probably summer res. in extreme west; crit.).—Huey, Trans. San Diego Soc. Nat. Hist., ix, No. 32, 1942, 364 (Organ Pipe Cactus National Monument, Ariz.; common res.).—Knowlton and Harmston, Auk, lx, 1943, 589 (Utah; food habits).—Hill, Auk, lxi, 1944, 230, 231 (meas.).—Knox, Auk, lxi, 1944, 23 (Gunnison County, Colo.; seen frequently).—Haecker, Moser, and Swenk, Nebraska Bird Rev., xiii, 1945, 10 (Nebraska; 10 recorded specs.).—Hudson, Murrelet xxviii, 1947, 2 (Grand Ronde River, Blue Mountains, Wash.).

Falco sparverius phaloena American Ornithologists' Union, Auk, xx, 1903, 339.—(?) Dearborn, Field Mus. Nat. Hist. Publ. 125, 1907, 83 (Los Amates and Gulan, Guatemala, below 2,000 feet).

Falco sparveria phalaena Hanna, Condor, xxvi, 1924, 148, in text (egg weight).

Falco sparverius phalaena Bergtold, Auk, xliv, 1927, 29, in text (crit.).—Taverner, Birds Canada, 1934, 148, in text (Canada).

Cerchncis sparverius phaloena Swarth, Pacific Coast Avif., No. 4, 1904, 8 (Huachuca Mountains, Ariz.; habits).—Hallinan, Auk, xli, 1924, 312 (New Culebra, Panama).

Cerchneis sparveria phaloena Swarth, Pacific Coast Avif., No. 4, 1904, 8 (Huachuca Mountains, Ariz.; abund.).—Miller, Bull. Amer. Mus. Nat. Hist., xxi, 1905, 345 (Escuinapa, s. Sinaloa).—Dawson and Bowles, Birds Washington, ii, 1909, 540 (Washington; distr.; habits).—Carriker, Ann. Carnegie Mus., vi, 1910, 470, part (crit.).

Cerchneis sparveria phalaena Miller, Bull. Amer. Mus. Nat. Hist., xxii, 1906, 160 (Rio Sestin and Santa Rosalia, nw. Durango, breeding).—Thayer and Bangs, Condor, x, 1908, 104 (Guadalupe Island, Lower California, common).—Oberholser, Auk, xxxiv, 1917, 201; Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 84 (spec.; Huachuca Mountains, southern Arizona).—Swann, Synopt. List Accip., pt. 4, 1920, 154.—American Ornithologists' Union,

Auk, xl, 1923, 518.—Burleigh, Auk, xl, 1923, 656 (Clarks Fork, Idaho).—Nice, Birds Oklahoma, 1924, 44 (genl.; Oklahoma).—Griscom and Crosby, Auk, xlii, 1925, 536 (status, Brownsville region, s. Texas).—McLellan, Proc. California Acad. Sci., ser. 4, xv, 1926, 298 (Guadalupe Island, Mexico).—Williams, Wils. Bull., xxxviii, 1926, 33 (status, Red River Valley, ne. North Dakota).—Swarth, Proc. California Acad. Sci., ser. 4, xviii, 1929, 294 (Patagonia; Madera Cañon, s. Arizona; nesting).—Fuller and Bole, Sci. Publ. Cleveland Mus. Nat. Hist., i, 1930, 45 (Wyoming).—Kemsies, Wils. Bull., xlii, 1930, 204 (Yellowstone Park, Wyo.).

Cerchneis sparverius phalaena Swann, Synop. Accip., pt. 4, 1922, 223 (e. British Columbia and w. Montana to nw. Mexico; s. in winter to Guatemala).—Swenk and Swenk, Wils. Bull., xl, 1928, 29, in text (winter; s. Arizona).

Falco (*Tinnunculus*) *sparverius* var. *isabellinus* (not Falco *isabellinus* Swainson) Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 171, part.

(?) *Tinnunculus sparverius isabellinus* Ridgway, Bull. Illinois State Lab. Nat. Hist., No. 4, 1881, 188 (Mount Carmel, Ill.).

Tinnunculus cinnamominus (not *Falco cinnamominus* Swainson) Gurney, Ibis, 1881, 554, 555, in text, part (near San Diego, Guatemala; Chontales, Nicaragua; Volcán de Chiriquí, Panama).

Falco sparverius deserticolus Mearns, Auk, ix, 1892, 257 (geogr. range), 263 (Fort Verde, Ariz.; coll. Amer. Mus. Nat. Hist.).—Allen, Bull. Amer. Mus. Nat. Hist., v, 1893, 34 (Pachico, etc., Ariz.).—American Ornithologists' Union, Auk, x, 1893, 60; Check-list North Amer. Birds, ed. 2, 1895, 140.—Brewster, Auk, x, 1893, 236 (Chilliwack, Brit. Columbia); Bull. Mus. Comp. Zool., xli, No. 1, 1902, 90 (San José del Cabo, Sept. 17, Oct. 19, Oct. 31, and Triunfo, Dec. 22, Lower California; crit.).—Anthony, Auk, xii, 1895, 138 (San Fernando and Ensenada, Lower California).—Dawson, Auk, xiv, 1897, 174 (Okanogan County, Wash.).—Merrill, Auk, xiv, 1897, 353 (Fort Sherman, Idaho, breeding).—Grinnell, Pasadena Acad. Sci. Publ. 2, 1898, 22 (Los Angeles County, Calif.); Pacific Coast Avif., No. 3, 1902, 34 (California, abundant res.).—Barlow, Wils. Bull., No. 20, 1898, 40 (San Benito County, Calif., nesting in magpies' nests).—Cooke, Colorado Agr. Exp. Stat. Bull. 56, 1900, 205 (Middle and South Parks, Colo., res.).—Rising, Condor, iii, 1901, 129 (Los Angeles, Calif.; breeding habits; descr. nest and eggs).—Bailey, Handb. Birds Western United States, 1902, 171 (descr.; distr.).

Falco sparverius deserticola Racey, Auk, xliii, 1926, 322 (Alta Lake region, Brit. Columbia).

[*Tinnunculus*] *deserticolus* Gurney, Cat. Birds Prey, 1894, 28.

[*Cerchneis*] *deserticola* Sharpe, Hand-list, i, 1899, 278.

Cerchneis sparveria guatemalensis Swann, Synopt. List Accip., pt. 4, 1920, 156 (Capetillo, Guatemala; coll. H. Kirke Swann).

Cerchneis sparverius guatemalensis Swann, Synop. Accip., pt. 4, 1922, 225 (Guatemala; Brit. Honduras; Honduras; Nicaragua; Costa Rica; Mexico?); Bull. Brit. Orn. Club, xliii, 1923, 148 (crit.).—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 194 (type in Mus. Comp. Zool.=*Falco sparverius sparverius*).

Falco sparverius paulus (not of Howe and King) Bennitt, Univ. Missouri Stud., vii, No. 3, 1932, 25 (s. Missouri; uncommon res.).

Falco sparverius guadalupensis Bond, Condor, xlv, 1943, 179 (Guadalupe Island, Baja California; crit.; descr.; distr.).—American Ornithologists' Union, Auk, lxii, 1945, 439 (nomencl.).

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FALCO SPARVERIUS PAULUS (Howe and King)

FLORIDA SPARROW HAWK

Adult male.—Similar to that of the nominate race, but with the dark spots on the underparts entirely (or in a few cases, nearly so) confined to the sides leaving the center of abdomen and the breast immaculate; size smaller.

Adult female.—Similar to that of the nominate race, but usually with the tail shorter.

Juvenal male.—None seen.

Juvenal female.—Like the adult, but with the ventral streaks darker, sepia.

Natal down.—None seen; not described.

Adult male.—Wing 165–180 (171.3); tail 110–122 (115.8); culmen from cere 11–12 (11.7); tarsus 33–37 (35.4); middle toe without claw 20–22 (20.9) mm.[74]

Adult female.—Wing 175–186 (179); tail 112–120 (117.1); culmen from cere 12–13 (12.3); tarsus 32–36 (34.4); middle toe without claw 20–22 (21.2 mm.).[75]

Range.—Resident throughout Florida, except on the lower keys where it is not known to breed; also along the Gulf States to southern Alabama, Mississippi, and Louisiana, north to southern Georgia and to extreme southern Tennessee (?).

Type locality.—Miami, Fla.

Falco sparverius (not of Linnaeus) CASSIN, *in* Baird, Rep. Pacific R. R. Surv., ix, 1858, 13, part (Indian Key, Fla.).—MAYNARD, Birds Eastern North America, 1881, 295, part (s. Florida).—AMERICAN ORNITHOLOGISTS' UNION, Check-list, 1886, and ed. 2, 1895, No. 360, part.—RIDGWAY, Man. North Amer. Birds, 1887, 252, part.—DUMONT, Auk, xlviii, 1931, 250 (Pinellas County, Fla.).

Falco sparverius a. *sparverius* COUES, Birds Northwest, 1874, 349, part.

Falco sparverius sparverius MEARNS, Auk, ix, 1892, 258, part (Florida; crit.).—HOLT, Geol. Surv. Alabama, Mus. Paper No. 4, 1921, 56 (Alabama; res.; food.; spec.).—MCILHENNY, Bird-Banding, viii, 1937, 121 (Avery Island, La.; banding); xi, 1940, 109 (Avery Island, La.; breeding).

Tinnunculus sparverius BAIRD, Cat. North Amer. Birds, 1859, No. 13, part.—TAYLOR, Ibis, 1862, 128 (Florida).

Cerchneis sparveria SHARPE, Hand-list, i, 1899, 277, part.

Cerchneis sparveria sparveria FIGGINS, Auk, xl, 1923, 675 (Cameron Parish, La.).

Tinnunculus sparverius var. *isabellinus* (not *Falco isabellinus* Swainson) RIDGWAY, Proc. Acad. Nat. Sci. Philadelphia, 1870, 149, part (Florida); Rod and Gun, vi, 1875, 109, in text, part; Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 420a.—COUES, Key North Amer. Birds, 1872, 215, in text, part ("Gulf States").

(?) *Falco* (*Tinnunculus*) *sparverius* b. var. *isabellinus* RIDGWAY, Proc. Boston Soc. Nat. Hist., xvi, 1873, 48 ("Cuba?"; Georgia).

[74] Fifteen specimens from Florida and Mississippi.

[75] Thirteen specimens from Florida.

Falco (*Tinnunculus*) *sparverius* var. *isabellinus* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 171, part (Florida).

Falco sparverius var. *isabellinus* Coues, Check List North Amer. Birds, 1873, No. 346 a; ed. 2, 1882, No. 509.

Falco sparverius isabellinus? Coues, Key North Amer. Birds, ed. 2, 1884, 538.

Cerchneis sparverius paulus Howe and King, Contr. North Amer. Orn., i, 1902, 28 (Miami, Fla.; coll. Howe and Shattuck).—Swann, Synop. Accip., pt. 4, 1922, 224.—Bangs, Bull. Mus. Comp. Zool., lxx, 1930, 194 (type in Mus. Comp. Zool.).

Cerchneis sparveria paula Oberholser, Auk, xxxiv, 1917, 201; Bird Life Louisiana, 1938, 189 (Louisiana; distr.; breeds).—Howell, Auk, xxxviii, 1921, 256 (Royal Palm Hammock, Fla.; not uncommon).—American Ornithologists' Union, Auk, xl, 1923, 518.—Howell, Birds Alabama, 1924, 144; ed. 2, 1928, 144 (distr.; habits; Alabama).—Bailey, Birds Florida, 1925, 73, pl. 39 (col. fig.; distr.; Florida).—Holt and Sutton, Ann. Carnegie Mus., xvi, 1926, 429 (habits, s. Florida).—Bent and Copeland, Auk, xliv, 1927, 381 (Hernando and Pasco Counties, Fla.).—[Arthur], Birds Louisiana, 1931, 211 (descr.; stat.; Louisiana).

Cerchneis sparveria paulus Swann, Synopt. List. Accip., pt. 4, 1920, 155.

Falco sparverius paulus American Ornithologists' Union, Auk, xxv, 1908, 347 Check-list, ed. 3, 1910, 167; ed. 4, 1931, 77.—Baynard, Auk, xxx, 1913, 244 (Alachua County, Fla., breeding).—Nice, Birds Oklahoma, rev. ed., 1931, 78 (genl.; Oklahoma).—Peters, Check-list Birds of World, i, 1931, 302.—Bailey, Wils. Bull., xliv, 1932, 186, in text (range).—Howell, Florida Bird Life, 1932, 190 (genl.; Florida).—Bond, Birds West Indies, 1936 (West Indies; possible occurr.); Check List Birds West Indies, 1940, 26, in footnote (se. United States).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 125 (life hist.).—Burleigh, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 20, 1944, 362 (Gulf coast of Mississippi; rare, breeds).—Hill, Auk, lxi, 1944, 230 (meas.).—Green, Griffin, Odum, Stoddard, and Tomkins, Birds, Georgia, 1945, 35 (Georgia; breeds in s. half of State).

FALCO SPARVERIUS PENINSULARIS Mearns

San Lucas Sparrow Hawk

Adult male.—Similar to that of the nominate form, but smaller, the black spots on the underparts fewer and smaller on the average, and averaging slightly paler gray (deep gull gray) and rufescent above, the latter color with a faint sandy tone, almost vinaceous-cinnamon.

Adult female.—Like that of the nominate race, but smaller, the rufescent of the upperparts generally (not including the tail) paler and slightly duller, the dark cross bars dark grayish.

Juvenal male.—Like the adult, but with a few dark streaks on the breast and the abdominal spots elongated into tear-shaped markings; feathers of the crown with dusky gray transverse spots.

Juvenal female.—Like the adult, but with the ventral streaks sepia instead of ochraceous-tawny; cross bars on the tail blacker.

Natal down.—Unknown.

Adult male.—Wing 163–178 (169); tail 113–126 (118.5); culmen

from cere 12–12.5 (12.1); tarsus 35–40 (36.3); middle toe without claw 21–24 (22.5 mm.).[76]

Adult female.—Wing 170–181 (175.1); tail 118–132 (122.4); culmen from cere 12–13 (12.3); tarsus 36–40 (39.1); middle toe without claw 21.5–24 (22.4 mm.).[77]

Range.—Resident in southern Baja California from Santana southward to the Cape (San José del Cabo, Cape San Lucas, Carmen Island, Triunfo, Santiago, San José del Rancho, Miraflores, Ceralvo; Espíritu Santo Islands, San Ignacio); also recorded from 20 miles south and southwest of Pilot Knob (on the Colorado and Alamo Rivers), from 5 miles east of Cerro Prieto, and from the hot lowlands of Sonora and Sinaloa (breeding south to Río Fuerte, wintering to Mazatlán).

Type locality.—San José del Cabo, Baja California.

Tinnunculus sparverius (not *Falco sparverius* Linnaeus) Baird, Cat. North Amer. Birds, 1859, No. 13, part; Proc. Acad. Nat. Sci. Philadelphia, xi, 1859, 302 (Cape San Lucas).—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193, part; Nom. North Amer. Birds, 1881, No. 420, part.—Belding, Proc. U. S. Nat. Mus., v, 1883, 543 (Cape San Lucas); vi, 1883, 350 (Laguna Mountains, s. Lower California).

Falco sparverius Coues, Key North Amer. Birds, 1872, 215, part; Check-list North Amer. Birds, 1873, No. 346, part; ed. 2, 1882, No. 508, part.—American Ornithologists' Union, Check-list, 1886, No. 360, part; Man. North Amer. Birds, 1887, 252, part.—Bryant, Proc. California Acad. Sci., ser. 2, ii, 1889, 281, 282, part (Cape San Lucas district).

Falco (Tinnunculus) sparverius var. *sparverius* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 169, part (Cape San Lucas).

Falco sparverius a. *sparverius* Coues, Birds Northwest, 1874, 349, part.

Falco sparverius peninsularis Mearns, Auk, ix, 1892, 257 (geogr. range), 267 (San José, Lower California; coll. U. S. Nat. Mus.).—American Ornithologists' Union, Auk, x, 1893, 60 (Check-list, No. 360 b); Check-list, ed. 2, 1895, No. 360 b; ed. 3, 1910, p. 167; ed. 4, 1931, 77.—Brewster, Bull. Mus. Comp. Zool., xli, 1902, 90 (San José del Cabo, San José del Rancho, Triunfo, and Santiago; s. Lower California; April 20, July 8, Oct., Nov., Dec.; Carmen Island, March 2).—Townsend, Bull. Amer. Mus. Nat. Hist., xlviii, 1923, 14 (Cape San Lucas, March 24; Miraflores, May 2 and 18).—Grinnell, Univ. California Publ. Zool., xxxii, No. 1, 1928, 112 (distr. in Lower California).—Bancroft, Condor, xxxii, 1930, 27 (breeding, Santa Rosalia to José Marcia Cañon, Lower California).—Peters, Check-list Birds of World, i, 1931, 303.—Rowley, Condor, xxxvii, 1935, 164, in text (Lower California; 5 nest records).—Bent, U. S. Nat. Mus. Bull. 170, 1938, 124 (habits).—Hargrave, Condor, xli, 1939, 207, in text (size of bones).—van Rossem, Occ. Pap. Mus. Zool. Louisiana State Univ., No. 21, 1945, 65 (Sonora; common res.).—Moore and Bond, Condor, xlviii, 1946, 242, in text (Mexico; breeding range).

Falco sparverius penninsularis Bond, Condor, xlv, 1943, 176 (descr.; distr.; tax.).

Tinnunculus peninsularis Gurney, Cat. Birds Prey, 1894, 28.

Cerchneis peninsularis Sharpe, Hand-list, i, 1899, 278.

[76] Sixteen specimens, including the type, from Lower California.

[77] Twelve specimens from Lower California.

Cerchneis sparveria peninsularis Thayer and Bangs, Condor, ix, 1907, 136 (Rosario and Santa Ana, Lower California).—Oberholser, Auk, xxxiv, 1917, 201.—Swann, Synopt. List Accip., pt. 4, 1920, 154.—American Ornithologists' Union, Auk, xl, 1923, 518 (nomencl.; crit.).

Cerchneis sparverius peninsularis Swann, Synop. Accip., pt. 4, 1922, 224.

FALCO SPARVERIUS TROPICALIS (Griscom)

Guatemalan Sparrow Hawk

Adult male.—Similar to that of *Falco sparverius sparverius*, but with no hazel patch on the crown, slightly darker slate on the head, and slightly darker hazel on the upperparts; smaller, the breast whitish or only slightly washed with pale fawn color.

Adult female.—Similar to that of the nominate race, but with less (sometimes no) hazel on the crown, and with the ventral streaks averaging slightly darker, Saccardo's umber to pale sepia, and smaller.

Juvenal.—Young birds differ from adults of the same sex, in the same way as do those of the typical race.

Natal down.—Unknown.

Adult male.—Wing 171–174.5 (171.7); tail 117.2–125 (121.6); culmen from cere 11–12 (11.5); tarsus 31–35 (33.4); middle toe without claw 20–23 (21.4 mm.).[78]

Adult female.—Wing 180–182.5 (181.5); tail 124–128 (125.8); culmen from cere 12; tarsus 35; middle toe without claw 21.5–22 (21.8 mm.).[79]

Range.—Resident from the interior of Chiapas (Motozintla, Teopisca, San Cristóbal) and the central arid portion of Guatemala (Capetillo, Antigua, Panajachel, Lakes Atitlán, and Amatitlán) to northern Honduras (La Flor, Archaga; Subirana, Department of Yoro; Rancho Quemado).

Type locality.—Antigua, Guatemala.

Cerchneis sparveria tropicalis Griscom, Amer. Mus. Nov., No. 414, 1930, 1 (orig. descr.; Antigua, Guatemala); Bull. Amer. Mus. Nat. Hist., lxiv, 1932, 165 (Antigua, Panajachel, and Lake Amatitlán, Guatemala; and n. Honduras just s. of Quiriguá, Guatemala).

Falco sparverius tropicalis Peters, Check-list Birds of World, i, 1931, 303.

FALCO SPARVERIUS SPARVERIOIDES Vigors

Cuban Sparrow Hawk

Adult male.—Light phase: Generally resembling lighter-colored examples of *Falco sparverius sparverius*, but much paler, the inner webs of the primaries mainly white, the dusky bars not extending more than halfway across the webs; crown with no chestnut patch; the "mustache" across cheeks indistinct or obsolete; the superciliary

[78] Five specimens, including the type, from Guatemala and Honduras.

[79] Three specimens from Guatemala.

region and forehead conspicuously white; the scapulars, interscapulars, and upper wing coverts very sparsely, if at all, marked with black; underparts immaculate white, stained or tinged with very pale pinkish cinnamon, chiefly on the breast; under wing coverts pure white; tail pattern uniform (variable in the nominate race), the outer web of the outermost pair of rectrices white, the inner web and both webs of all the others hazel, tipped with white and crossed by a broad subterminal blackish band; cere and angle of mouth bright orange-red; iris dark brown; bill pale bluish becoming slate-black at tip; tarsi and toes deep orange chrome; claws black.

Adult male.—RUFOUS PHASE.—Forehead, crown, occiput, nape, scapulars, interscapulars, back, rump, upper wing and tail coverts dark slate, the feathers of the head and upper wing coverts with fine black shafts, the larger scapulars and interscapulars with obscure median blackish spots; a black nuchal collar connecting on either end with the solid blackish auriculars, cheeks, superciliaries, and lores; primaries as in light phase, but the white of the inner webs replaced by dirty smoke gray; secondaries as in light phase, but dark—dark slate with blackish shaft streaks and no transverse bars; upper tail coverts washed with Brussels brown; rectrices argus brown to Brussels brown instead of hazel, otherwise as in light phase; chin and middle of throat dull ashy white; rest of underparts deep rufescent Brussels brown to bright hazel, slightly paler on the under tail coverts; under surface of tail pale dull hazel; under wing coverts slate spotted with blackish.

Adult female.—LIGHT PHASE: Similar to that of *Falco sparverius sparverius*, but the upperparts brighter, more rufescent, hazel, the blackish cross bars much less numerous and narrower; crown with no or only a fairly small hazel patch; rectrices with 10–11 black bars, some of the more distal ones (but not the broader, subterminal one) scarcely touching the shaft; outermost pair of tail feathers with outer web edged broadly with ochraceous-white or white, pale rufescent next to the shaft; entire underparts white, a faint buffy wash on the breast and sides and lower abdomen, the sides and the breast with a few small (very small on the breast) elliptical spots of tawny; under wing coverts immaculate white; soft parts as in the adult male.

Adult female.—RUFOUS PHASE: Similar to that of the light phase, but with the entire forehead, crown, and occiput solid dark slate with no rufescent patch; the dark bars on the upperparts much more numerous and much broader, the general color brighter and more ferruginous than in the light phase; the inner webs of the primaries more deeply washed with hazel; chin and middle of throat dirty white; rest of underparts, including the sides of the neck and the under wing coverts deep rusty cinnamomeous paling very considerably

on the thighs, lower abdomen, and under tail coverts to pale cinnamon-buff or even pinkish buff, the sides and flanks, and to a much lesser extent, the middle of the abdomen with transverse blackish, wedge-shaped spots, the thighs and under tail coverts with indistinct cinnamon spots.

Juvenal male.—Light phase: Like the adult, but with more blackish markings on the scapulars, interscapulars, and upper wing coverts; often indistinguishable from older birds; cere and orbits pale dull yellow; iris brown; bill pale blue darkening to slate-black at tip; tarsi and toes dull yellow; claws black.

Juvenal male.—Rufous phase: Similar to the adult, but with the scapulars, interscapulars, back, rump, and upper tail coverts deep argus brown more or less washed with slate and marked with cordate black spots (in some specimens these parts are almost uniform argus brown, in others they are numerously marked with black and extensively washed with slate); middle of abdomen also often spotted with brownish black; chin and middle of throat white; under wing coverts white spotted with plumbeous-black.

Juvenal female.—Light phase: Like the adult, but with the breast, upper abdomen, and sides marked with narrow, small tawny to pale sepia, elongate spots or streaks; the dark bars on the upperparts much more numerous and wider, the feathers of the top of the head with very conspicuous black shafts; tail deeper and brighter—almost chestnut; soft parts as in the young male.

Juvenal female.—Rufous phase: Like the adult, but with the breast, abdomen, and under wing coverts spotted transversely with blackish wedge-shaped marks; the dark bars on the upper surface broader, producing a darker, less rufescent, appearance.

Natal down.—White.

Adult male.—Wing 168–180 (174.6); tail 114–126 (120); culmen from cere 12–13 (12.5); tarsus 34–39 (37.3); middle toe without claw 20–23 (22 mm.).[80]

Adult female.—Wing 174–189 (183.4); tail 118–130 (123.4); culmen from cere 12–13 (12.5); tarsus 35–42 (38.6); middle toe without claw 22–23.5 (22.8 mm.).[81]

Range.—Resident in Cuba and the Isle of Pines. Very common throughout its range.

Type locality.—Cuba.

Falco sparverius (not of Linnaeus) Vigors, Zool. Journ., i, 1825, 339; iii, 1827, 435 (Cuba).—d'Orbigny, *in* La Sagra, Hist. Nat. Cuba, Ois., folio ed., 1839, 36; 8vo ed., 25.—Hartlaub, Naumannia, 1852, 52, part (Cuba; crit.).—

[80] Sixteen specimens from Cuba and the Isle of Pines.

[81] Fifteen specimens from Cuba and the Isle of Pines.

Theineman, Journ. für Orn., 1857, 146 (Cuba; descr. eggs).—Brewer Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).

Falco sparverius . . . F. sparveroides Poey, Mem. Real Soc. Econ. Habana, ser. 2, vi, No. 2, 1848, 100 (Cuba).

Falco sparverioides Vigors, Zool. Journ., iii, 1827, 436 (Cuba); Isis, 1830, 116.—d'Orbigny, *in* La Sagra, Hist. Nat. Cuba, Ois., folio ed., 1839, 38, pl. 1; 8vo ed., 30.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 247 (Cuba).—Gundlach, Journ. für Orn., 1871, 265, 267, 274 (descr. eggs).—Coues, Check List North Amer. Birds, ed. 2, 1882, No. 510; Key North Amer. Birds, ed. 2, 1884, 538.—American Ornithologists' Union, Check-list, 1886, No. [361].—Cory, Auk, iv, 1887, 45 (descr.; syn.); ix, 1892, 272 (San Diego de los Baños, Cuba); Birds West Indies, 1889, 203; Cat. West Indian Birds, 1892, 10, 99, 139, 140.—Ridgway, Man. North Amer. Birds, 1887, 253 (Cuba; "Haiti"; casual in s. Florida); ed. 2, 1895, 253 (dark phase).—Chapman, Bull. Amer. Mus. Nat. Hist., iv, 1892, 294 (near Trinidad, s. Cuba; crit.).—Todd, Ann. Carnegie Mus., x, 1916, 195 (Bibijagua, Los Indios, and Nueva Gerona, Isle of Pines; crit.; habits).—Barbour, Mem. Nuttall Orn. Club, No. 6, 1923, 49 (Cuba; crit.; list of species).—Danforth, Wils. Bull., xl, 1928, 180 (near Santiago de Cuba, Cuba).

Falco sparveroides Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 149.—American Ornithologists' Union, Check-list, ed. 3, 1910, 167.—Rutten, Ardea, xxiii, 1934, 113, 116, in text (Cuba; courtship behavior; breed.; very common).

Falco (*Tinnunculus*) *sparverioides* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 49 (Monte Verde, Cuba); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 162.

Falco (*Tinnunculus*) *sparveroides* Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 162.

Falco sparverius sparverioides Cory, List Birds West Indies, rev. ed., 1886, 22 (Cuba).—Wetmore, Proc. U. S. Nat. Mus., lxxxi, 1932, 15 (near Gibara and Río Fabrico, Cuba).—Danforth, Journ. Agr. Univ. Puerto Rico, xix, 1935, 425 (Cuba; common).—Bond, Birds West Indies, 1936, 76, in footnote (crit.).

Falco sparverius sparveroides Peters, Check-list Birds of World, i, 1931, 303.

Tinnunculus sparverioides Gray, Gen. Birds, i, 1844, 21.—Fraser, Zool. Typica, 1849, pl. 30.—Bonaparte, Rev. Mag. Zool., 1854, 536.—Strickland, Orn. Syn., i, 1855, 100.—Brewer, Proc. Boston Soc. Nat. Hist., viii, 1860, 306.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 1 (Cuba).—Albrecht, Journ. für Orn., ix, 1861, 199 (Cuba).—Sclater and Salvin, Nom. Av. Neotr., 1873, 121.—Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 193; Nom. North Amer. Birds, 1881, No. 421.—Gurney, Ibis, 1881, 565, in text (crit., etc.); List Diurn. Birds Prey, 1884, 100 (crit.).

Tinnunculus sparveroides Kaup, Isis, 1847, 51 (monogr.), 363; *in* Jardine's Contr. Orn., 1850, 53.—Bonaparte, Consp. Gen. Av., i, 1850, 27.—Lawrence, Ann. Lyc. Nat. Hist. New York, vii, 1860, 247 (Cuba; syn.; crit.).—Albrecht Journ. für Orn., 1861, 199 (Cuba).—Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 149 (diagnosis); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 162 (diagn.).

Cerchneis sparverioides Sharpe, Cat. Birds Brit. Mus., i, 1874, 443 (Cuba); Hand-list, i, 1899, 278.—Oberholser, Auk, xxxiv, 1917, 201.—Swann, Synopt. List Accip., pt. 4, 1920, 161; Synop. Accip., pt. 4, 1922, 230 (Cuba;

Santo Domingo?; casual in Florida?).—American Ornithologists' Union, Auk, xl, 1923, 518.

Cerchneis sparveroides Bailey, Birds Florida, 1925, 73, pl. 39 (col. fig.; rare straggler to e. Florida).

Falco mercuriales Hartlaub, *ex* MS. litt., Würtemburg, Naumannia, 1852, 52, part (Cuba).

Falco plumbiceps Hartlaub, *ex* MS. litt. Würtemburg, Naumannia, 1852, 52, part (Cuba).

Tinnunculus dominicensis (not *Falco dominicensis* Gmelin) Cabanis, Journ. für Orn., 1854, lxxxiv (Cuba; crit.).—Brewer, Proc. Boston Soc. Nat. Hist., vii, 1860, 306 (Cuba).—Gundlach, Journ. für Orn., 1861, 322 (Cuba), 403 (Cuba; crit.); Repert. Fisico-Nat. Cuba, i, 1865–66, 225; 1871, 373 (Cuba; habits); Cat. Aves Cubana, Anales Soc. Esp. Hist. Nat., ii, 1873, 102 (Cuba); Contr. Orn. Cubana, 1876, 48; Orn. Cubana, 1895, 30.—Gray, Hand-list, i, 1869, 24 No. 218, part (Cuba).—Gurney, Ibis, 1881, 564, in text, part (Cuba; crit.; etc.); List Diurn. Birds Prey, 1884, 99, part (Cuba); Cat. Birds Prey, 1894, 28, part (Cuba).

Falco sparverius dominicensis Cory, List Birds West Indies, rev. ed., 1886, 22, part (Cuba).—Bond, Birds West Indies, 1936, 76, 80, in text, part (Cuba, Isle of Pines), 414, part; Check List Birds West Indies, 1940, 27, part (Cuba).

Falco sparverius dominicensis Bond, Check List Birds West Indies, ed. 2, 1945, 26, part.

Falco sparveroides dominicensis Barbour, Mem. Nuttall Orn. Club, No. 9, 1943, 38 (Cuba; very common; list of specs.).

Falco dominicensis Ridgway, Man. North Amer. Birds, 1887, 253, part (Cuba); Auk, viii, 1891, 113, part (Cuba; crit. nomencl.).

Poecilornis dominicensis Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 260 (Cuba).

Cerchneis dominicensis Sharpe, Hand-list, i, 1899, 278, part (Cuba).

Cerchneis sparveria dominicensis Bangs and Zappey, Amer. Nat., xxxix, 1905, 191 (Isle of Pines).—Swann, Synopt. List Accip., pt. 4, 1920, 156, part (Cuba).

Cerchneis sparverius dominicensis Mengeaux, Rev. Franç. d'Orn., No. 2, 1909, 21 (Guatánamo, San Carlos, and Figuabas, e. Cuba; crit.).—Swann, Synopsis Accip., pt. 4, 1922, 225, part (Cuba).

Falco (*Tinnunculus*) *leucophrys* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, xxii, 1870, 140, 147, 149, part (type from Remédios, e. Cuba, in coll. U. S. Nat. Mus.); Proc. Boston Soc. Nat. Hist., xvi, 1873, 49 (Remédios, Cuba); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 161.

Falco leucophrys Coues, Amer. Nat., v, 1871, 238 (Cuba).

Tinnunculus leucophrys Ridgway, Proc. Acad. Nat. Sci., Philadelphia, xxii, 1870, 140, footnote; *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 161, part (Cuba).—Sclater and Salvin, Nom. Av. Neotr., 1873, 121, part (Cuba).

Cerchneis leucophrys Sharpe, Cat. Birds Brit. Mus., i, 1874, 442 (Monte Verde, e. Cuba).

Poecilornis leucophrys Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 260 (Cuba).

Poecilornis sparverinus Heine and Reichenow, Nom. Mus. Hein. Orn., 1890, 260 (Cuba).

FALCO SPARVERIUS CARIBAEARUM Gmelin

ANTILLEAN SPARROW HAWK

Adult male.—Differs from that of the nominate race in the following particulars: The rectrices have black shafts and marginal black spots or incomplete bars anterior to the broad subterminal band; the scapulars, interscapulars, and upper back are much more broadly and numerously barred with black; the chestnut crown patch averages smaller; the general color of the upperparts is slightly darker slate and hazel; the black spots on the sides and upper abdomen are larger and average more numerous; breast varies in tone as in nominate race.

Adult female.—Similar to that of the nominate race, but generally darker and more richly colored above, the chestnut crown patch variable, but not attaining the maximum size found in *Falco sparverius sparverius;* the black bars on the upperparts broader and darker; the ventral markings much darker, dark sepia to fuscous and tending to be wider, more tear-shaped.

Juvenal male.—Differs from the adult in having narrow fuscous streaks on the breast and the abdominal markings more streaklike; the dorsal dark bars averaging broader.

Juvenal female.—Similar to the adult, but with the breast more abundantly streaked with fuscous-black lines; most birds indistinguishable from the adult.

Natal down.—White.

Adult male.—Wing 160–172 (165.4); tail 115–126 (121.9); culmen from cere 12.5–14 (12.9); tarsus 36–39 (37.6); middle toe without claw 22.5–25 (23.7 mm.).[82]

Adult female.—Wing 160–178 (169.5); tail 121–138 (129); culmen from cere 13–14 (13.7); tarsus 36–42 (38.8); middle toe without claw 23–27 (25.1 mm.).[83]

Range.—Resident in Puerto Rico and the Lesser Antilles—Puerto Rico, Vieques, Culebra, St. Croix, St. Thomas, St. Jan, Tortola, Jost van Dyke, Virgin Gorda, Anegada, Anguilla, St. Martin, Saba, St. Bartholomew, St. Kitts, Nevis, Barbuda, Antigua, St. Eustatius, Guadeloupe, Dominica, Les Saintes, Grande Terre, Montserrat, Martinique, St. Lucia, Barbados, St. Vincent, Bequia, and Grenada. Common on the northern, rare on the southern islands.

Type locality.—None stated; = Lesser Antilles from references; Dominica suggested by Swann (Synopt. List Accip., 1920, 155).

(?) *Falco antillarum* GMELIN, Syst. Nat., i, pt. 1, 1788, 264 (Antilles; based on *Accipiter aesalon antillarum* Brisson, Orn., i, 1760, 104; *Mans fenny* Ray, Av., 19; Du Tertre Hist. des Antilles, 2, 252; Buffon, Ois., i, 144; Latham,

[82] Twelve specimens from Puerto Rico, Anegada, and Saba.

[83] Fifteen specimens from Puerto Rico; Barbuda; Guadeloupe; Anegada; and Antigua.

Synopsis, i, pt. 1, 47).—Latham, Index Orn., i, 1790, 19.—Daudin, Traité d'Orn., ii, 1800, 57.—Shaw, Gen. Zool., vii, pt. 1, 1809, 98.—Sonnini, Nouv. Dict. Hist. Nat., xix, 1818, 237.

Aesalon antillarum Moritz, *in* Wiegmann's Arch. Naturg., 1836, 390 (Porto Rico).

Tinnunculus sparverius var. *antillarum* Lawrence, Proc. U. S. Nat. Mus., i, 1878, 65 (Dominica), 236 (Antigua), 240 (Barbuda), 274 (Grenada), 359 (Martinique), 459 (Guadeloupe), 487 (West Indian localities).—Allen, Bull. Nuttall Orn. Club, v, 1880, 169 (Santa Lucia; crit.).

Tinnunculus antillarum Gurney, Ibis, 1881, 556 [–560], in text (crit., etc.).

Falco aesalon γ *caribaearum* Gmelin, Syst. Nat., i, pt. 1, 1788, 284 (Caribbean Islands; based on *Aesalon antillarum* Brisson, Orn., i, 1760, 111; *Emerillon Gry Gry* Du Tertre, Hist. Nat. Antilles, ii, 253; Ray, Av., 19).

Falco aesalon var, β Latham Index Orn., i, 1790, 49 (Caribee Merlin, *ex* Synopsis Birds, i, 1781, 108, No. 93 B).

Falco dominicensis (not of Gmelin) Daudin, Traité d'Orn., ii, 1800, 143, part.—Bryant, Proc. Boston Soc. Nat. Hist., x, 1866, 249 (Puerto Rico); Journ. für Orn., 1866, 181 (Puerto Rico.)—Cory, Auk, iv, 1887, 44, part (Puerto Rico); vii, 1890, 374 (Anegada), 375 (Tórtola; Virgin Gorda); Birds West Indies, 1889, 202, part (Puerto Rico).—American Ornithologists' Union, Check-list, ed. 2, 1895, 140 (Cuba).—Bowdish, Auk, xix, 1902, 361 (Puerto Rico).

Falco (*Tinnunculus*) *sparverius* d. var. *dominicensis* Ridgway, Proc. Boston Soc. Nat. Hist., xvi, 1873, 49 (Puerto Rico).

Falco sparverius caribbaearum Cory, List Birds West Indies, rev. ed., 1886, 22; Ibis, 1886, 474 (La Desirade; Marie Galante).—Clark, Proc. Boston Soc. Nat. Hist., xxxii, 1905, 240 (Barbados, St. Vincent, Bequia, Granada); West Indian Bull., xi, 1911, 182 (Santa Lucia).

Falco sparverius caribearum Peters, Auk, xliv, 1927, 534 (Anguilla, West Indies).

Falco sparverius caribaearum Wetmore, New York Acad. Sci., ix, pt. 3, 1927, 327 (genl.; Puerto Rico and Virgin Islands).—Beatty, Journ. Dept. Agr. Puerto Rico, xiv, 1930, 139 (St. Croix; Estate Constitution Hill, Virgin Islands; breeds).—Danforth, Auk, xlvii, 1930, 45 (St. Martin and Eustatius, Lesser Antilles); Journ. Dept. Agr. Puerto Rico, xiv, 1930, 115 (St. Croix; Tortola; Virgin Gorda; Virgin Islands); xv, 1931, 48 (near Mayagüez, Aguadilla, Coloso, Aguada, etc., Puerto Rico); Auk, li, 1934, 357 (Antigua; uncommon); Journ. Agr. Univ., Puerto Rico, xix, 1935, 477 (Barbuda; spec.; food); xxii, 1938, 507 (Saba; local; spec.); xxiii, 1938, 22 (Guadeloupe; Les Saintes; Desirade; Marie Galante; spec.); xxiii, 1939, 53 (Montserrat, common and generally distributed; spec. food).—Peters, Check-list Birds of World, i, 1931, 303.—Bond, Birds West Indies, 1936, 76, in text (Lesser Antilles, doubtful; Puerto Rico, Vieques, Culebra, Virgin Islands; descr.; crit.), 414; Check-list Birds West Indies, 1940, 27; ed. 2, 1945, 27 (West Indies; distr.); Auk, lviii, 1941, 366 (Dominica; nest.; eggs).

Falco caribbacarum Cory, Auk, iv, 1887, 46 (descr.; syn.; localities), 96 (Martinique); vii, 1890, 374 (Anegada); viii, 1891, 46 (Anguilla), 47 (Antigua; St. Eustatius), 48 (St. Croix; St. Christopher; Guadeloupe); Birds West Indies, 1889, 204; Cat. West Indian Birds, 1892, 10, 99, 139, in text, 140.—Sclater, Proc. Zool. Soc. London, 1889, 395 (Santa Lucia).—Mearns, Auk, ix, 1892, 253 (diagnosis).—Verrill, Trans. Connecticut Acad. Arts and Sci., viii, 1892, 326 (Dominica; habits; fresh colors of unfeathered parts).—Nicoll, Ibis, 1904, 572 (Montserrat).

Cerchneis caribbaearum Sharpe, Cat. Birds Brit. Mus., i. 1874, 442, footnote; Hand-list, i, 1899, 278.

Cerchneis sparveria caribaearum Riley, Smiths. Misc. Coll., xlvii, 1904, 282 (Barbuda; Antigua; descr.; crit.).

Cerchneis sparveria caribbaearum Noble, Bull. Mus. Comp. Zool., lx, 1916, 365 (Guadeloupe; habits).—Swann, Synopt. List Accip., pt. 4, 1920, 155.

Cerchneis sparverius carribbaearum Swann, Synop. Accip., pt. 4, 1922, 224.

Tinnunculus sparverius caribbaearum Ridgway, Rod and Gun, vi, July 3, 1875, 105, in text.—Wells, Proc. U. S. Nat. Mus., ix, 1887, 622 (Grenada, res.).

Tinnunculus sparverius b. *caribbaearum* Gurney, List Diurn. Birds Prey, 1884, 99 (crit.).

Tinnunculus caribbaearum Grisdale, Ibis, 1882, 491 (Montserrat; habits).—Sclater, Proc. Zool. Soc. London, 1889, 326 (Dominica); 1893, 499 (Anguilla).—Gurney, Cat. Birds Prey, 1894, 28.

Tinnunculus caribaearum Ridgway, Proc. U. S. Nat. Mus., vii, 1884, 172 (St. Thomas).—Berlepsch, Journ. für Orn., 1892, 92, in text.

Falco sparverius dominicensis Ridgway, *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 167 (St. Bartholomew; Puerto Rico).—Bond, Birds West Indies, 1936, 76, 80, in text, part (except Cuba, Isle of Pines), 414, part; Check List Birds West Indies, 1940, 27, part (all except Cuba and Hispaniola).—Danforth, Auk, liii, 1936, 100, in text (Mona Island; spec.; meas.).—Davis, Wils. Bull., liii, 1941, 38 (Cuba; Cienfuegos; color phases).

Tinnunculus dominicensis Strickland, Orn. Syn., i, 1855, 100 (St. Thomas; excl. syn.).

Tinnunculus sparverius var. *dominicensis* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 149 (diag.).

Cerchneis dominicensis Sharpe, Cat. Birds Brit. Mus., i, 1874, 439 (St. Thomas; "St. Domingo"; excl. syn. part).

Falco sparverius Shaw, Gen. Zool., vii, pt. 1, 1809, 199, part.—Lesson, Traité d'Orn., 1831, 95, part (Antilles).—Sundevall, Öfv. Vet.-Akad. Förh., 1869, 586 (St. Bartholomew).

Tinnunculus sparverius (not *Falco sparverius* Linnaeus) Newton and Newton, Ibis, 1859, 63, pl. 12 (St. Croix; descr. nest and eggs).—Cassin, Proc. Acad. Nat. Sci. Philadelphia, xii, 1860, 374 (St. Thomas; crit.).—Taylor, Ibis, 1864, 166 (Dominica).—Sclater, Proc. Zool. Soc. London, 1871, 273 (Santa Lucia; crit.); 1879, 765 (Montserrat).—Semper, Proc. Zool. Soc. London, 1872, 652 (Santa Lucia; habits).

Tinnunculus? sparverius Gundlach, Journ. für Orn., 1874, xxii, 310 (Puerto Rico).

Tinnunculus sparverius? Gundlach, Journ. für Orn., 1878, xxvi, 158 (Puerto Rico).

Cerchneis sparveria Wetmore, Bull. Amer. Mus. Nat. Hist., xlvi, 1922, 303 (bones from caves in Puerto Rico).

Tinnunculus sparveroides (not *Falco sparverioides* Vigors) Lawrence, Ann. Lyc. Nat. Hist. New York, viii, 1864, 97 (Sombrero).

Cerchneis sparveria loquacula Riley, Smithsonian Misc. Coll., xlvii, Nov. 8, 1904, 284 (Vieques Island, Puerto Rico; coll. U. S. Nat. Mus.).

Falco sparverius loquacula Wetmore, U. S. Dept. Agr. Bull. 326, 1916, 31 (Puerto Rico, res.; habits; food); Auk, xxxiv, 1917, 57 (Culebra Island; Puerto Rico; common res.; habits).—Struthers, Auk, xl, 1923, 471 (Puerto Rico).—Groebbels, Der Vögel, i, 1932, 274 (food).

Falco sparverius loquaculus Peters, Check-list Birds of World, i, 1931, 303 (Puerto Rico and adjacent islands e. to the Anegada Passage).—Danforth, Journ. Agr. Univ. Puerto Rico, xix, 1935, 447 (Virgin Islands, abundant on Culebra

and Louis Peña; scarce on Cayo Norte and Culebrita), 466 (Virgin Islands; localities); xxi, 1937, 542 (Vieques Island; rare).

FALCO SPARVERIUS DOMINICENSIS Gmelin

Hispaniolan Sparrow Hawk

Adult male.—Similar to that of the nominate race, but the chestnut coronal patch usually absent, the upperparts paler, orange-cinnamon to pecan brown with few (sometimes no) black transverse marks on the scapulars or back; underparts entirely unspotted except for a few round black spots on the extreme sides of the body (covered by the closed wing); breast pale ochraceous buff to pale ochraceous salmon, rest of underparts, including under wing coverts white.

Adult female.—Similar to the adult female of the typical subspecies, but much paler below, the breast suffused with pale ochraceous buff to pale ochraceous-salmon, the feathers of the breast and sides of the upper abdomen with fine cinnamon shaft streaks terminally widening into small spots; upperparts generally brighter, hazel, especially the tail.

Juvenal male.—Similar to the adult, but with some chestnut on the crown, and with the breast and upper abdomen with a few small elliptical blackish or fuscous spots.

Juvenal female.—Similar to the adult, but with the sides of the upper abdomen spotted sparsely with sepia.

Natal down.—Not recorded.

Adult male.—Wing 180–194 (183.4); tail 118–131 (124.6); culmen from cere 12–13 (12.7); tarsus 37–41 (39); middle toe without claw 21–24 (21.6 mm.).[84]

Adult female.—Wing 180–195 (189.6); tail 123–130 (126); culmen from cere 12–14 (12.9); tarsus 35–40 (36.1); middle toe without claw 23–25 (23.3 mm.).[85]

Range.—Resident in and common throughout Hispaniola including Île à Vache and Gonave Island.

Type locality.—Hispaniola.

Aesalon dominicensis Brisson, Orn., i, 1760, 393, pl. 32, fig. 2 ("Saint-Domingue").

Falco dominicensis Gmelin, Syst. Nat., i, pt. 1, 1788, 285 (Santo Domingo; based on *Emerillon de St. Domingue* Brisson, Orn., i, 1760, 389, pl. 32, fig. 2; *St. Domingo Falcon* Latham, Synop Birds, i. 1781, 111).—Daudin, Traité d'Orn., ii, 1800, 143, part (Santo Domingo).—Bryant, Proc. Boston Soc. Nat. Hist., xi, 1867, 90 (Santo Domingo; crit.).—Cory, Auk, iv, 1887, 44, part (Haiti; Santo Domingo; excl. syn. part); Birds West Indies, 1889, 202, part (Haiti; Santo Domingo; excl. syn. part); Cat. West Indian Birds, 1892, 10, 99, 139, 140 (Haiti; Santo Domingo).—Ridgway, Man. North Amer-

[84] Sixteen specimens from Haiti and the Dominican Republic.

[85] Thirteen specimens from Haiti and Santo Domingo.

Birds, 1887, 253, part (Haiti); Auk, viii, 1891, 113, part (Haiti; crit. nomencl.).—Cherrie, Orn. San Domingo, 1896, 23 (Santo Domingo).—Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, lxi, 1909, 358 (Santo Domingo).

Falco sparverius dominicensis Cory, List Birds West Indies, rev. ed., 1886, 22, part (Santo Domingo).—Peters, Bull. Mus. Comp. Zool., lxi, 1917, 401–402 (Monte Cristi, Sosúa, Chocó; specimens).—Kaempfer, Journ. für Orn., lxxii, 1924, 181 (Dominican Republic).—Beebe, New York Zool. Soc. Bull., xxx, 1927, 140; Beneath Tropic Seas, 1928, 221 (Haiti).—Bond, Proc. Acad. Nat. Sci. Philadelphia, 1928, 493 (Haiti, including Tortue and Gonave Islands); Birds West Indies, 1936, 76, 80, in text, part (Hispaniola), 414, part; Check List Birds West Indies, 1940, 27; ed. 2, 1945, 26, part (Hispaniola).—Danforth, Auk, xlvi, 1929, 362 (common; Hispaniola).—Moltoni, Att. Soc. Ital. Sci. Nat., lxviii, 1929, 310 (Haina, Moca; Hispaniola).—Wetmore, Auk, xlvii, 1930, 483 (Rabie painting; Hispaniola); Proc. U. S. Nat. Mus., lxxxi, art. 2, 1932, 7, 8, 15 (Île à Vache, Gonave Island, Petite Cayemite Island, Haiti).—Wetmore and Swales, U. S. Nat. Mus. Bull. 155, 1931, 119 (genl.; syn.; distr.; habits; Haiti and Dominican Republic).—Peters, Check-list Birds of World, i, 1931, 303.—Wetmore and Lincoln, Proc. U. S. Nat. Mus., lxxxii, art. 25, 1933, 10 (Île à Vache), 21 (Port-au-Prince, Dessalines, Trou, Terrier Rouge, La Hotte Mountains, Deron, Desbarriere, La Cour l'Anglais, Roseaux River, Las Matas, and other localities, Hispaniola), 119 (habits; distr.; Hispaniola).—Barnes, Auk, lxiii, 1946, 322 (Mona Island, Puerto Rico).

Tinnunculus dominicensis Strickland, Orn. Syn., i, 1855, 100, part (Haiti).—Gray, Hand-list, i, 1869, 24, No. 218, part (Haiti).—Gurney, Ibis, 1881, 564, in text, part (Haiti; crit.); List Diurn. Birds Prey, 1884, 99, part (Haiti); Cat. Birds Prey, 1894, 28, part (Haiti).

Cerchneis dominicensis Sharpe, Hand-list, i, 1899, 278, part.

Cercneis dominicensis Ciferri, Segund. Inf. An. Est. Nac. Agr. Moca, 1927, 6

Cerchneis sparveria dominicensis Swann, Synopt. List Accip., pt. ix, 1920, 156, part (Santo Domingo).

Cerchneis sparverius dominicensis Swann, Synop. Accip., pt. 4, 1922, 225, part (Santo Domingo).

Falco sparverius Vieillot, Nouv. Dict. Hist. Nat., xi, 1817, 99, part (Santo Domingo).—Hartlaub, Naumannia, 1852, 52, part (Haiti; crit.).

Falco spaverius Ritter, Naturh. Reis. Westind. Insel Hayti, 1836, 155 (Haiti; spec.).

(?) *Falco sparverius* Cory, Birds West Indies, 1889, 201 (Santo Domingo); Cat. West Indian Birds, 1892, 99 (Haiti).—Verrill and Verrill, Proc. Acad. Nat. Sci. Philadelphia, lxi, 1909, 358 (Santo Domingo).

Tinnunculus sparrerius Vieillot, Hist. Nat. Ois. Amér. Sept., 1807, 41 ("Saint Domingue").

Tinnuculus sparverius (not *Falco sparverius* Linnaeus) Sallé, Proc. Zool. Soc. London, 1857, 230 (Santo Domingo).

Tinnunculus sparverius Sallé, Proc. Zool. Soc. London, 1857, 231 (Nizao, Hispaniola).

Tinnunculus sparverius var.? Cory, Bull. Nuttall Orn. Club, vi, 1881, 154 (not uncommon; Haiti).

Falco sparverius isabellinus (not *Falco isabellinus* Swainson) Cory, Birds Haiti and San Domingo, 1885, 124 (Puerto Plata and Maqua, Santa Domingo).—Tippenhauer, Die insel Haiti, 1892, 319, 322.

Tinnunculus isabellinus Tristram, Cat. Coll. Birds H. B. Tristram, 1889, 271 (Dominican Republic).

Aesalon carolinensis Brisson, Orn., i, 1760, 389, pl. 32, fig. 1 ("Saint-Domingue").

(?) *Hypotriorchis ferrugineus* Saussure, Rev. Mag. Zool., 1859, 119, pl. 13 (Santo Domingo).

(?) *Tinnunculus* (?) *ferrugineus* Ridgway, Proc. U. S. Nat. Mus., iv, 1881, 197.

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Tinnunculus leucophrys Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 140, 149, part (Haiti); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 161.—Sclater and Salvin, Nom. Av. Neotr., 1873, 121, part (Haiti).

Falco (*Tinnunculus*) *leucophrys* Ridgway, Proc. Acad. Nat. Sci. Philadelphia, 1870, 147, part (Haiti); *in* Baird, Brewer, and Ridgway, Hist. North Amer. Birds, iii, 1874, 161, part (Haiti).

Falco sparverioides (not of Vigors) Ridgway, Man. North Amer. Birds, ed. 2, 1895, 293, part (Haiti).

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